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AMERICAN ANNALS OF THE DEAF.

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CEREBRAL PHYSIOLOGY AND THE EDUCATION OF DEAF CHILDREN.

IT is part of the working theory of every physician and surgeon that in all but the very young—all, say, who are older than six months—the surface of the brain has by education become functionally differentiated into specialized centres, which govern the outlying parts of the body, whether these be sensory, such as the eye and ear, or motor, such as the muscles of the limbs.

At first the movements in a very young child are reflex merely; they are not governed by any experience, and they are not directed by anything which we recognize as will.

Education, which begins as soon as the child is born, sets apart certain areas of the surface—hence called cortical centres—to preside over the exercise of special functions.

But whilst education is necessary for the development of this presiding power in the surface of the brain, it has to proceed within rigidly fixed lines, governed by heredity and anatomical connection, and hence we always find the same small area of the brain presiding over the same set of functions. We do not find in one case an area of the

surface controlling the movements of the arm, and in another case the corresponding area governing the sense of sight, or the movements of the leg.

Now, the two great sciences which have developed our knowledge of cerebral localization are experimental physiology and clinical pathology. By experiments on animals it is possible to map out those portions of the surface of the brain which have become specialized for the government of individual sensory and motor functions; and by comparing the symptoms of disease during life with the evidences of disease found after death, a set of conclusions is arrived at which tallies pretty exactly with the results of experimental physiology.

The accompanying map of the surface of the brain shows approximately the principal centres or specialized areas:

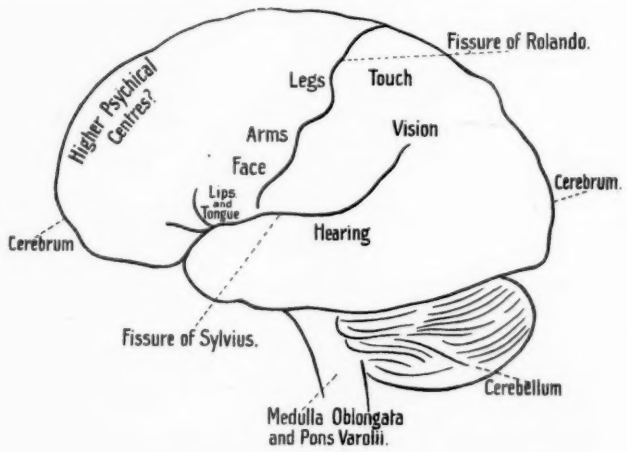


FIG. 1.

Map of the surface of the brain, showing approximately the various centres or specialized areas.

(At one time these cortical centres were regarded as accurately mapped areas, separated by almost linear

margins. More recent research points to them rather as areas within which the special sense indicated is most active; and in normal children with the usual stimuli operating through the usual channels—the eye, the ear, the organs of taste, touch, and smell—the differentiation of the cortex is so uniform that almost no variation in the areas occurs. What may occur in abnormal children will be noticed later.)

The cortical centres of the brain not only receive impressions from without, but store away past impressions, and thus become memory centres. Whether this takes place within the special centre itself or in some associated part of the brain does not matter for the purpose of the present argument.

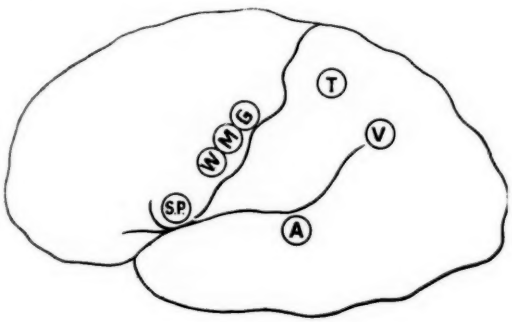


FIG. 2.

Centres concerned in the appreciation and production of language. A, auditory centre; Sp., speech centre; V, visual centre; WMG., writing, manual alphabet, and gesture language centres; T, touch centre. (The group WMG represents Bastian's cheiro-kinæsthetic centre; Sp., the glosso-kinæsthetic centre.)

It will be found convenient for the purposes of this paper to divide the language centres shown in Fig. 2 into *language appreciating centres* (the auditory, the visual, and the touch centres), and the *language producing centres* (the speech centre, and the group used in writing, in spelling the manual alphabet, and in producing gestures and signs—

WMG in the figure). The latter are usually regarded as motor centres (Ferrier and others). Sometimes they, like the language appreciating centres, are regarded as true sensory centres, like those for hearing, sight, and touch (Bastian and others), with associated motor centres in the medulla and spinal cord lower down. So long, however, as the double function of receiving and storing impressions is associated with each, the difference above indicated may be neglected so far as the arguments here used are concerned.

In studying cerebral localization in connection with education, it is important to consider the history of the probable rise of these centres in the development of the race, and then the known order of their rise in the development of the individual. Lastly, when one or more of these centres is destroyed, we shall see what alterations are made in the cerebral arrangements.

In animals the brain arrangements are much simpler than in man.

It is true that in some animals special parts of the brain are more highly developed than in man—for instance, that which governs the sense of smell in dogs. But the cerebral hemispheres are always smaller and less convoluted than in man; and, as we ascend in the scale, the higher animals show arrangements which closely resemble those of man. Thus, in the monkey the convolutions are more numerous, the cerebral hemispheres greater in bulk, than in the rabbit or the pigeon. They still fall greatly short of those in man, though the great fissures and divisions of the surface of the brain clearly foreshadow what is to come in the human species. And it may be put down as a general principle that the amount of intelligence displayed by an animal is in direct proportion to the size which the cerebral hemispheres bear to the rest of the brain (Figs. 1 and 3).

The young child is born with all the potentialities of the

adult brain. Every convolution and groove is present at birth, and only awaits education to develop the power latent in each. In studying the rise of the specialized centres in the history of the human race, we may exclude from present consideration those which are possessed in common by animals and man, such as sight, hearing, the centres for moving the arms and legs, those for taste and smell, and the centre for touch. Having done so, we find that, from the educational point of view, the chief difference between animals and man is the power of speech possessed by the latter. I am not denying to animals the possession of language, but speech and its recently acquired form of expression, written language, are possessed by none but man.

In the normal child the acquisition of language is the acquisition of speech. A purely sign stage is a very temporary one, and before he learns writing the child's vocabulary is complete for all the ordinary purposes of life. He learns speech by imitation. He produces more or less accurately the sounds which he has heard others produce, and these he modifies by movements of the lips and tongue similar to those he has seen others perform. After many attempts he speaks so that others understand what he means.

But sound or phonation is no essential part of speech. In whispered speech phonation is absent. Neither is a passing of a current of air through the larynx, as occurs in whispered speech, any necessary part of speech, for we may lip-read the speech of a person through whose air-passages no current is passing. Speech in the strictest sense is the action of the muscles of the tongue and lips for the production of understood symbols, and under the control of a special motor centre in the brain. It may be quite silent, and yet remain true speech.

It is important to dissociate the phonetic from the kinetic

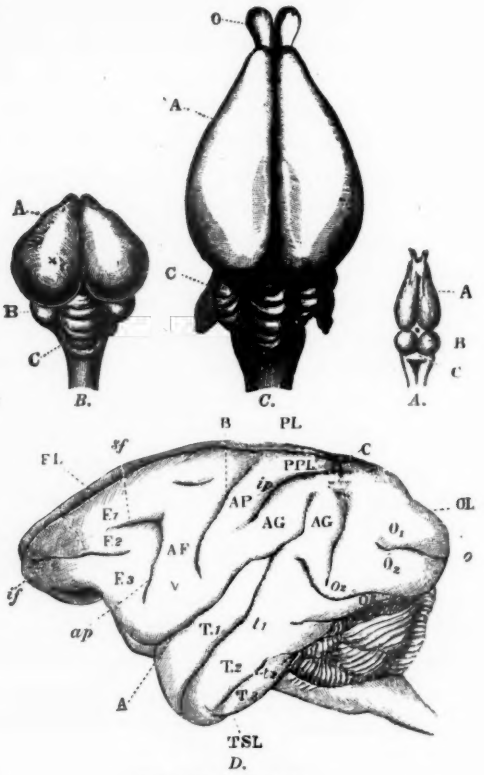


FIG. 3 (from Ferrier).

A.—Brain of frog. A, cerebral hemispheres; B, optic lobes; C, cerebellum.
B.—Brain of the pigeon. A, cerebral hemispheres; B, optic lobes; C, cerebellum.
C.—Brain of the rabbit. A, the smooth cerebral hemispheres; O, the olfactory bulbs; C, the cerebellum.
D.—Left hemisphere of the brain of the monkey (Macaque). A, the fissure of Sylvius; B, the fissure of Rolando; C, the parieto-occipital fissure; FL, the frontal lobe; PL, the parietal lobe; OL, the occipital lobe; TSL, the temporo-sphenoidal lobe; F_1, the superior frontal convolution; F_2, the middle frontal convolution; F_3, the inferior frontal convolution; *sf*, the supero-frontal sulcus; *if*, the infero-frontal sulcus; *ap*, the antero-parietal sulcus; AF, the ascending frontal convolution; AP, the ascending parietal convolution; PPL, the postero-parietal lobule; AG, the angular gyrus; *ip*, the intra-parietal sulcus; T_1, T_2, T_3, the superior, middle, and inferior temporo-sphenoidal convolutions; t_1, t_2, the superior and inferior temporo-sphenoidal sulci; O_1, O_2, and O , the superior, middle, and inferior occipital convolutions. O1, O2, the first and second occipital fissures.

element in speech, because they are registered in separate centres of the speaker's brain. A person may become so

deaf that he cannot hear the sound of his own voice, and yet speak quite distinctly; while in a case of motor aphasia the hearing of the patient's own voice is perfect, but the production of the movements which result in speech is impossible. The normal child, however, corrects the tone and pitch of his voice by using his ear, whilst both his eye and his ear are at work in helping him to produce vowels and consonants, and the result is distinct, well-intoned musical speech. In imitating the movements which he finds result in speech, he is also guided largely by his sense of touch, so that the movements of his lips and of his tongue enable him to reproduce accurate speech, even when the latter is not phonetic. The impressions which have reached the child through the two great gateways of knowledge—the eye and the ear—have enabled him to respond with speech, for which there is no substitute in the very young child; and when he arrives at school age he meets his teacher with a vocabulary which, although not extensive, has been so long used for the expression of his thought that its use has become automatic. The pre-speech or sign stage of the hearing child's life is short and its effects transient, and does not influence profoundly his ultimate thought methods.

In discussing the operation of the language centres, it is important to distinguish between speech and language. Language, as we shall see, includes speech and very much more; speech is the expression of thought by articulate movements. For want of the observation of this distinction, physiological and clinical text-books often suffer in clearness—*e. g.*, the translation of Professor Preyer's book, *The Infant Mind*, also Hutchinson and Rainy's *Clinical Methods*, where speech proper is referred to as "spoken speech" and writing as "written speech."

There is a sense in which the history of the individual is the history of the race, and the history of the race is the

history of all the life which has preceded it, and this must be borne in mind in tracing the rise of intelligence in the young child. Starting with the assumption that language is the common possession of animals and man, let us see in what this common possession consists. And in order to make this and much more which follows clear, we must define what language is.

Language is that by which thought or feeling is expressed or conveyed. It is not the exclusive property of man. In both its vocal and silent forms it exists amongst animals, and serves for the thorough education of the young by the mother just as it does with us. When language becomes not only vocal but articulate it is commonly called speech, and as such is the exclusive property of man. As used by man, language is either natural or artificial.

Natural language consists chiefly of facial expression, as shown in crying, frowning, laughing, etc., most elements of which are possessed alike by animals and man, and most elements of which are retained by man to ornament or enforce the more exact and extended form of language which we call speech. These facial expressions, together with gesticulation and gestures imitating actions, form the sign language of the deaf, a language which is really cosmopolitan, and is understood, even when somewhat abridged, by the deaf of all countries. This sign language of the deaf has nothing to do with the manual alphabet language, which is not a natural but a purely conventional form of language, and is really a system of writing in the air by means of the hands.

There can be little doubt that these natural signs were the earliest form of human language, and there is no doubt at all that they are the earliest form of language understood by the young child. From his earliest infancy the child has conventional words associated with these signs, but the signs are understood long before the words, and without

the use of the signs the education of the child would be indefinitely postponed. The mother who invited the child to leave his nurse's arms without smiling and holding out her own arms would hopelessly fail to make the child understand the words, "Come to me, my dear." And there is no doubt that the ease with which deaf children fall back on natural signs as a means of expressing their thoughts and feelings is partly due to the fact that these are the oldest forms of language used by man. The outfit for the practice of this natural sign language consists of fair eyesight and the use of the muscles of the face and upper limbs, or, in the map of the surface of the brain, the integrity of the centres V and G, together with their associating fibres (Fig. 2). In the young child speech follows the language of signs and gestures, and precedes drawing and writing, and in the history of man there can be no doubt that speech also was added to the sign language long before writing or graphic delineation of any kind came into being.

We know nothing of the first forms of human speech, but these must be of great antiquity; so great, indeed, that all present forms of speech are, in comparison, recent, and all forms of writing as of yesterday. Primitive human speech was probably developed from a system of calls and a kind of chatter such as exists among the higher animals of to-day, and an existing motor centre was put to a new use.

The motor centre or centres for the control of the muscles of the lips, tongue, and throat had parts of their substance gradually set apart for the modification of the voice in speech, and either in it or in an associated centre the power to record the memory of the words produced and learnt became established. No new cohesion or association of centres by tracts of fibres was necessary; as voice became articulate and speech became precise, old centres enlarged

to meet new needs. But the acquisition of speech made higher thought possible by giving an exact means of expressing it, and by making the expression of abstract ideas possible. By signs and gestures, even when aided by inarticulate vocal utterance, only the immediate wants of an animal can be expressed, and amongst the deaf in our own time gesture language is not capable of expressing exact thought or abstract idea. It is upon this acquisition of speech, say after the age of fifteen to eighteen months, that the rapid mental development takes place, which, even before he goes to school at the age of five or six years, places the child far ahead of the most advanced and experienced animal. It was the acquisition of speech by primitive man which made his rapid advance in mental power possible, and which in the brain is shown by the greater relative bulk of the cerebrum. This setting aside of parts of existing centres for highly specialized purposes has been repeated in the history of the human race. A part of the auditory centre has been set apart for word-hearing and a part of the visual centre for word-seeing; and, when we come to study the phenomena of word-deafness and word-blindness we shall see that these are quite compatible with otherwise perfect sight and hearing.

The acquisition of speech by the race has been attended by some relative disadvantage. Equipped with his higher power for the exact expression of thought and feeling, the need for the great acuteness of the other senses, such as smell, became less. The sense of smell in the dog and deer is infinitely more acute than in man, and the eye as an optical instrument is in many ways far inferior in man to what obtains in some families of the lower creation; but the possession of speech, which has rendered the exercise of smell and sight for the purposes of self-preservation less necessary, has conferred on man advantages which far outweigh these relative losses.

In speaking of the acquisition of speech by the young child, Bastian* says—

"The potentiality of attaining to such a power the child receives in the main as an inheritance from so many antecedent generations of men that its actual manifestation—the acquisition, that is, of the power of speaking—can only be regarded as a motor achievement of an order similar to some of those which may be included amongst the instinctive acts of lower animals, the similarity being not so much with the instinctive acts that animals are born with the capacity of performing, but rather with those which manifest themselves a little later in life, and which (from the more gradual acquirement) might be thought not to be instinctive acts at all. . . . Slowly elaborated developments of the parts of the medulla and of the brain concerned in the acts of speech we may presume had taken place in remote individuals of the present race as they acquired additional powers in this respect, and the power of developing similar structural connections between nerve cells and nerve fibres thus established having been handed down and rendered more perfect by hereditary transmission through countless succeeding generations, the infant is born to-day, perchance, with the potentiality of developing a nervous system as complex and as perfect in this respect as any which may have preceded it in its own ancestral line."

Possessed of the power of speech, and with a desire to have some permanent record of his thought, man invented the art of writing. At first this form of language was, like that which preceded speech, natural and graphic, and consisted of picture-writing. Later, with the invention of the alphabet, it became, like speech, artificial and conventional. But while speech is a mere symbol of the thing represented by the word, the connection between writing and the thing it represents is even looser. It is but the "symbol of a symbol," for when we write or read a word representing an object, we think of the object through the word, and in most cases where the power to call up, by what may be called internal speech, the name of the object is lost, the power to write or read the word is also lost. Only in the more highly-trained intellects is it possible to do without

**The Brain as an Organ of the Mind*, fifth edition, 1902, p. 604.

this intermediary internal speech, and write or read the name of the object directly.

The centre for speech is, in part at least, a motor centre, and in this respect differs from those for sight and hearing. These latter are purely sensory. The memory of words spoken is largely a memory of movements made by the muscles of articulation, and must be distinguished from the memory of words heard. This distinction is of importance with regard to the practice of speech and of lip-reading by the deaf.

In the processes of thought, these associated language centres for vision, hearing, writing, and speech co-operate, and though all are not used in every thought process, yet all are called in when the thought process is at all involved or obscure. If a stranger ask a native for a little-known street, the latter will often repeat the name of the street audibly before giving his direction to the stranger, thus making his speech and auditory centres co-operate in recalling to his mind the locality of the street wanted. If one have difficulty with the spelling of a word, the correct spelling is often quickly arrived at by writing the word and looking at it, thus calling in the visual to the help of the auditory and speech centres. The comprehension of an obscure passage in a book is often improved by reading the passage aloud, the auditory and speech centres being thus called in to the aid of the visual centre in unravelling the meaning of the language employed. In this last instance, centres which had become automatic in their operation, and which demanded no separate act of attention, were called in—that is to say, audible speech assisted the higher centres in the comprehension of the obscure meaning. But the opposite of this is sometimes the case. If an Englishman, learning French, read the foreign language aloud, with the object of improving his pronunciation and accustoming his ear to the sound of the half-

learnt language, he will find that the comprehension of the passage is more difficult than it is when read silently, and he may fail altogether to reach the meaning unless he take to silent reading. In this last instance the operation of the motor speech and auditory centres is not automatic—they require increased attention, and their addition to the circuit of thought centres obscures rather than aids comprehension. This explains what is found in orally taught deaf children, that, in the later years of their school life, speech sometimes deteriorates because their attention is being occupied by efforts at the comprehension of more difficult language, and as less of it is given to speech, the latter becomes less distinct; and it supplies the physiological reason for devoting the earlier years of school life to speech and lip-reading, and only beginning writing and more difficult language training after speech has become as nearly automatic as possible.

The use of the term "automatic," as applied to the operation of the language centres, requires a little explanation. It is used in the sense of "secondarily automatic" as against the primarily automatic operations of breathing, circulation, etc., which are in operation from birth, which continue irrespective of the child's will, and on which his continued existence depends. But none of the special senses are automatic at birth; all have to be trained before they become automatic. All children are born deaf and blind. It is many days before a young child can be startled from his sleep by a loud noise, or before he can be made to follow a bright light with his eye. Further, none of the language centres becomes automatic over the whole field of possible experience. The most acute eye will fail, without some training, to appreciate all that can be seen in a field of the microscope, and the most acute ear requires training or repeated experience before it can appreciate the features of a fugue or a sonata. The term "automatic"

is, therefore, a relative one with regard to the eye and ear, but it is much more so with regard to the operation of the speech centre. This centre is not called into action nearly so soon in the life of the child as are those for the eye and the ear. But a time comes in the life of a child when the use of a vocabulary of common words becomes automatic, and then the inclusion of the speech centre in the circuit of difficult thought processes renders it useful or beneficial to the latter. This process is a continuous one in the life of a child, more and more difficult words being added to the automatic vocabulary.

It is not contended here that speech is of no use in assist-

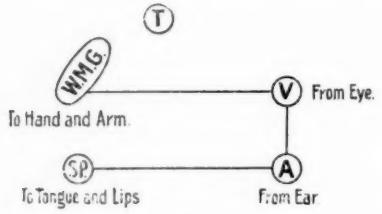


FIG. 4.

Language centres in the normal child.

Sp., motor speech centre (glosso-kinæsthetic centre); WMG, writing, manual alphabet, and gesture centre (cheiro-kinæsthetic centre); A, auditory centre, including auditory word centre; V, visual centre, including visual word centre; T, touch centre.

ing thought unless it have become automatic, but it is contended that unless it have become so, it is not spontaneously called in to the aid of the more difficult thought processes.

During the process of silent thought, words are revived and used as the symbols or counters by means of which the process is carried on in the thinker's mind. This may occur in a normal individual in three ways—(1) There may be a revival of the sounds of words as we hear them read, or as we hear ourselves use them in ordinary conversation; (2) there may be a revival of the appearance of words as

we see them after we have written them, or as we see them on the printed page; (3) there may be a revival of the feelings or sensations produced by the articulation of words. Probably most of us think in mixed images, but there can hardly be any doubt that, in carrying on this internal language, the revival of the sounds of words is the commonest, or, rather, the most conscious experience we undergo, hence most people are called "auditives," whilst those who think in revived word appearances, whether written or printed, have been called "visuals."

A good deal of controversy has occurred about the revival of words by the third method—as motor processes. Hughlings Jackson, Stricker, and Ballet hold that words are generally revived as faint excitations of the processes occurring in motor centres during the articulation of words, and each quotes his own experience as supporting this contention. Bastian, on the other hand, supports the view that words are revived in ordinary thought in the main as auditory ideas or images.

When from disease in a young child one or more of the language centres is thrown out of the circuit, the disturbance to, or impairment of, thought varies with the centres affected.

The condition of the blind child is not so difficult as at first appears. No doubt one of the great gateways has been closed, but it is that by which general effects rather than expressions of exact thought reach the brain. And with perfect hearing his speech develops with scarcely lessened pace, so that intellectually he is scarcely less fit to enter school than the ordinary child. His ability to appreciate accurate expressions of thought reaching him by the sense of hearing, and to respond by equally accurate expression through easily understood speech, makes rapid intellectual development possible. Internal language may be carried on in the blind child, as it is chiefly in the normal

child, by revived auditory impressions or by revived motor impressions, but never by revived visual impressions. There is, however, a third possible method, namely, by revived touch impressions, touch taking the place of sight.

If the position of the young blind child is better, that of the deaf-born child is worse than at first sight appears. No doubt broad general effects are expressed to him through the sense of sight, and an indefinite language of natural signs is learnt. Without hearing, however, he has no means of receiving expressions of exact thought, and without speech he has no means of formulating his own thought in exact terms, so that he commences his

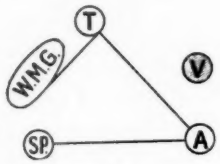


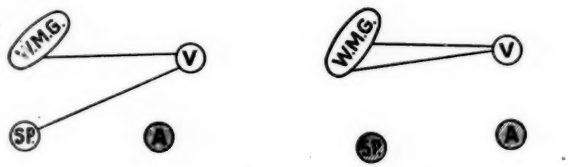
FIG. 5.

Language centres in the blind child.

References as in Fig. 4. The centre for vision is out of the circuit, and touch has taken its place.

school life at seven years in much the same condition intellectually as a hearing child of two years. In the interval between two and seven years his intellectual development has been arrested, and this arrest has its physical expression in the relatively smaller head of the deaf-mute child. Further, he meets his teacher without any stock of words to begin with, and the early years of his education are spent in getting together some form of verbal language. In carrying on internal language he cannot be an auditive; he must be a visual or a tactual. Sometimes his speech becomes so automatic that he thinks by recalling the movements of his lips and tongue as used

in speech. On the other hand, his eyes have been so accustomed to take the place of his ears that he may easily think in the revived impressions of words as seen on the printed page, or as seen on the lips or hands of those who have spoken to him. He must always differ from the hearing child, and even from the semi-mute child. These latter have used their auditory and speech centres so long that their influence can never be wholly eliminated from the thought processes. The congenitally deaf child has by six or seven years become such a confirmed "visual" that visualizing is apt to predominate in his thought processes.



A. FIG. 6. *B.*

Active centres in the deaf. *A*. The orally taught child (only A is inoperative). *B*. The manually taught child (both A and Sp. are inoperative).

Sp., speech centre; A, auditory centre; V, visual centre; WMG, writing, manual alphabet, and gesture language group of centres.

The following conversation between Dr. Forchhammer,* of the Nyborg Institution for the Deaf, and his congenitally deaf wife illustrates the composite nature of the picture formed by thought symbols, and the difficulty of apportioning the relative value to each. Mrs. Forchhammer has full command of the Danish language, and is a good lip-reader.

Dr. F.—"How is the thinking process carried on by you?"

Mrs. F.—"In pictures almost always as if the events were present before my eye."

Dr. F.—"When you have read anything, do you afterwards, when thinking of it, see the letters before your eyes?"

Mrs. F.—"No."

*Communicated to the writer for the purposes of this paper.

Dr. F.—"When you have been spoken to, do you think of the words as seen on the mouth of the speaker?"
Mrs. F.—"No; it is as if I said it myself."

Dr. Forchhammer, on a later occasion, tried in another way by asking her to recall something he had just said, and inquiring how she retained it.

Mrs. F.—"I think both of the subject and of the speech."
Dr. F.—"Do you think of my mouth or of your own speech?"
Mrs. F.—"I believe, of my own speech; it is as if I spoke myself."
Dr. F.—"What do you think of most—the speech or the subject?"
Mrs. F.—"I cannot tell—it is such a difficult matter to settle."

It would thus seem that amongst the congenitally deaf there is the same variety in the use of the symbols of thought as amongst the hearing, with the exception that the former are never "auditives."

The demand that the deaf think in one definite manner is not justifiable so far as the accuracy of the thought process is concerned. The important thing is that the symbols have become so familiar to the deaf person that their use does not require any separate act of attention.

There is, however, one difference between the use of speech on the one hand and finger-spelling on the other regarding their value in thought processes. In finger-spelling, however rapid, the result reaches the eye in the form of separate letters, and not of whole words or even syllables. With speech the movements, however complicated, reach the eye as whole words or syllables, just as they reach the ear. Take the words "clang," "plough," and "through." Each of these reaches the eye of the lip-reader just as it reaches the ear of the hearing person as a single effect, whereas they reach the eye when spelt on the fingers as five or six separate impressions. No doubt as isolated words they are much more apt to be wrongly read by the deaf when spoken than when spelt, but the association in which they occur reduces greatly

the risk of error. When the lip-reader is successful, his thought should be more rapid.

The condition of the blind-deaf child would appear at first sight to be quite hopeless, and until recent years was regarded as such. But he has one great gateway or avenue left—the sense of touch. Now, the information which reaches the blind-deaf through this channel is necessarily given very slowly; but, as it is given by means of a verbal language, it is capable of being expressed accurately, and it confers on the blind-deaf the power of responding in equally accurate terms. Intellectual development is, therefore, possible in theory to any extent by this means. In practice, such development is limited by the

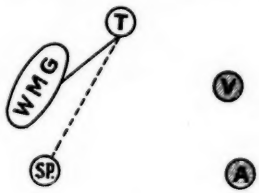


FIG. 7.

Language centres in the blind deaf. The only active associated fibres are those between T and the group WMG, unless speech be taught, in which case Sp. is brought into the circuit.

amount of time and patience required by both teacher and scholar to get good results.

Conspicuous cases of success have occurred, and chief amongst those are Laura Bridgman and Helen Keller. When I asked Miss Keller what effect she thought the acquisition of speech had on her, she replied, after a little thought, "It made me think three times more quickly." Now, before she learnt speech, Helen made remarkable progress. Every presentation reaching her through her sense of touch was arranged and packed carefully away for reproduction just when needed. Similarly, every successful finger-spelling movement could be repeated with a readiness

unusual in children. In other words, she had a splendid memory. What reached her she retained. What she did once she could repeat easily. But in her brain, till the age of ten years, only two centres were engaged in the regular work of education. The centres for vision and hearing were out of the circuit, the centre for touch alone was used for ingoing impressions (language appreciating centre), and the centres for movements of the arm and hand, as used in spelling the American or single-handed manual alphabet, was used by her in response as an outgoing centre (language producing centre). But when, on Helen making the demand, "I must speak," the old centre for speech, rendered apt for the expression of exact thought and abstract idea by thousands of years of hereditary use, was called in, she felt she had entered a new world, and exclaimed, "My soul, conscious of new strength, came out of bondage, and was reaching through these broken syllables to all knowledge and faith." She forthwith thought more rapidly and accurately.

In the blind-deaf who do not speak, internal language must be a series of revived touch impressions or of revived motor processes, the movements being those used in the spelling of the manual alphabet.

I have recently made further inquiry of Miss Keller with regard to her process of silent thought. In reply, she states that she often feels herself mentally talking with her lips; she also feels herself to be spelling with her fingers. When she thinks of something she has read she says she conceives the words in Braille points.

In her recently published book, *The World I Live in*,* she states:

"I cannot represent more clearly than anyone else the gradual and subtle changes from first impressions to abstract ideas, but I know that my physical ideas—that is, ideas derived from material objects—

*Helen Keller, *The World I Live in*, 1908, p. 146.

appear to me first in ideas similar to these of touch. Instantly they pass into intellectual meanings. Afterwards the meaning finds expression in what is called inner speech. When I was a child my inner speech was inner spelling. Although I am now frequently caught spelling to myself on my fingers, yet I talk to myself, too, with my lips, and it is true that when I first learnt to speak my mind discarded the finger symbols and began to articulate. However, when I try to recall what some one has said to me, I am conscious of a hand spelling into mine."

Now, Miss Keller learnt speech at ten years, before which she thought in spelling (individual letters), after which she thought in articulation processes (words).

If the modern view that the language centres are not areas rigidly mapped off from one another, but areas within which each special function is most active, a physiological examination of Miss Keller's remarkable mental power is here suggested. She declares that it is through her sense of touch that so much which usually reaches us through eye and ear comes to her brain, and her account of what comes to her by touch is from the physiological side a valuable and original series of observations. May not the cell-growth of the touch centre and its connections have extended during her early years at the expense of the contiguous grey matter which was inactive, and may not the grey matter of the touch area of the brain surface in her case occupy a relatively greater area than it does in normal people? This must always remain only a theory, but histologically there is no known difference in the grey matter forming the different centres behind the fissure of Rolando. Further, such a theory is in no way incompatible with what was stated at the beginning of this paper, viz., that in normal children, where the usual stimuli are in operation, development of function proceeds within rigidly fixed lines governed by heredity and anatomical connection.

An interesting paper by Professor Pawlow,* on what he calls "Conditioned Reflexes," may be referred to. The presence of food in the mouth, an "unconditioned stimulus," produces a flow of saliva. But usually the sight or smell of food produces the same result. Such is a "conditioned stimulus." Pawlow found that if in a dog such a conditioned stimulus be repeated often—for some days or weeks—without the particular food being actually given, it loses its power to excite the secretion of saliva by presentation to the nose or eye.

He next substituted a new conditioned stimulus for that usually supplied through the nose and eye. When food was placed in the dog's mouth, a given note on the piano was struck, and it was found that after thirty or forty repetitions of this, the striking of the piano note alone produced by itself the flow of saliva. Further, he found that the varying of this note by even a quarter of a semitone was enough to interfere with the salivary response.

Now, such physiological alterations in the methods of response to stimuli cannot take place without corresponding changes in the brain substance, viz., new cell cohesions and developments.

No wonder the sense of touch in the blind becomes developed and apparently more acute to a remarkable degree, and as in the blind the alteration in the circuit is permanent and not as in the dog (see above experiment), temporary, it seems fair to assume that the touch area of the cortex becomes permanently extended at the expense of contiguous unused areas. Thus, Miss Keller's marvelous use of her sense of touch finds a physiological explanation, and the same argument applies to her scarcely less marvelous use of the sense of smell.

Alongside of Helen Keller's case may be put that of

*Huxley Lecture, *Lancet*, October 6, 1906, p. 911.

Laura Bridgman. The latter is not only of great value as a physiological study, but also because it made success with the former possible. The chief initial difference between the two, looking at them as subjects for the operation of the language centres, is the almost total absence of the sense of smell from Laura's case. Helen's use of the sense of smell undoubtedly raises it to the position of a true language centre, a position it does not occupy in the normal child. In connection with the theory put forward above with regard to the acuteness of Helen Keller's sense of smell and touch, the description of the brain as found at Laura Bridgman's autopsy is valuable.

"The examination of the brain showed that those portions which from youth up could not be brought into activity in the ordinary way through external impressions, viz., all the cerebral nerves, were small; the gustatory nerve, the auditory nerve, and a nerve that moves the eyeballs were stunted, and this was specially true of the tract of the optic nerves. The cerebral hemispheres appeared somewhat flattened behind, and the occipital lobe, in fact, smaller on the right than on the left, and the right cuneus much less developed than the left. This difference in the region belonging to the visual centres is intelligible when we consider that Miss Bridgman from her second year was completely blind with the left eye, whereas with the right she retained some sensation of light until her eighth year, enough, at any rate, to allow the development of the centres of the left side to go on."

Assuming these details of the autopsy of the brain to be correct, we have proof that the loss of function of, or the absence of, the end organs in the eye or ear is accompanied by a shriveling of the tracts leading to the brain, and of the parts of the brain connected therewith. The writer has shown that in deaf-mutes the delay in development of the language centres is associated with a less size of the head than holds in the normal child.

Is it not reasonable to suppose that the greater use of the senses of smell and touch which took place in Helen Keller's case has been accompanied by a corresponding increase of the cortical areas belonging to those centres?

Looking now to the operations of the language centres proper, the chief difference between Helen and Laura is the possession of speech by the former. There is no doubt Laura Bridgman could have been taught to speak, and Dr. Howe, her teacher, ultimately regretted that he had not taught her speech. But the acquisition of speech would never have made Laura Bridgman into an Helen Keller. Long before the latter had learnt speech she showed a mentality which Laura Bridgman never reached. The interesting thing about Laura is not that she was never taught speech, but that without teaching she had a vocabulary of fifty or sixty words, or at least of articulation movements which passed for words, and which she used with accuracy chiefly for the designation of persons of her acquaintance. These words were, according to Dr. Lieber, all monosyllabic, and in her use of them she resembled children and uncivilized tribes. A poor vocabulary, one may say, but a very eloquent testimony to the heredity of the tendency to speak. Laura never spoke sentences; when she used language in her sleep, it was the language of the manual alphabet.

Dr. Lieber says:*

"Laura was positively interrupted in the formation of her imperfect and elementary phonetic language in order to make her a being of intercourse in our society—in order to attach her as a living member to the community of civilization. This could not have been done had she been allowed freely to indulge in the harsh and grating sounds which excited souls utter forth through a throat untaught and unbred, so to say, by the harmony of developed civilization in which we move."

Like Laura Bridgman, Helen showed the hereditary tendency to speak when she said, "I must speak." What she aspired to was hardly considered possible.

Side by side with Dr. Howe's great work (the teaching of language to the blind-deaf) must be put Helen Keller's

*Maud and Florence Howe, *Laura Bridgman*, 1904, p. 244.

(the acquisition of speech by the blind-deaf)—the greatest individual achievement in the whole history of oralism, or indeed of education.

But it was well for Helen that she was not born in 1829, as Laura Bridgman was. For fifty years after that the teaching of the deaf in America was manual, as introduced by the elder Gallaudet, and Helen Keller's cry, "I must speak," would, in spite of her own great genius, have been vain.

Although an attempt has been made here to show the operation of the language centres in these two remarkable cases, there are two points which must be borne in mind. Both heard and saw for the first two years of life, and although neither in later years could recollect color and sound impressions, it does not follow that such impressions had no influence in their later thought processes. It is almost certain that such an influence continued.

On the other hand, no attempt is made here to account for the mental result in Laura Bridgman and Helen Keller as the product of the language centre alone. It seems to the writer even more difficult to do so (especially in the case of Helen Keller) without postulating the existence of a soul than it is in the case of the normal individual.

A short study of aphasia, with the related conditions of word-deafness and word-blindness, is useful in two ways. It helps us to understand the mechanism of speech, and it throws light on the management of a small class of extremely difficult, but also extremely important, cases amongst backward children. It will also help the understanding of the difficulties of the deaf and blind.

The cortical centres concerned in the reception and production of language are the visual and the auditory on the one hand, and the centre for speech and writing on the other.

With the writing centre may, as we have seen, be included the manual and gesture centres, because writing is

only putting down on paper by one set of conventional signs what the hands write in the air by another set, whilst in all three the same set of muscles—those of the hands and arms—are those chiefly engaged. Now, in children, education may be hindered by damage to the terminal organs, the ear and the eye, or to the auditory and optic nerves leading from these terminal organs to the corresponding centers in the brain (see Fig. 4). As a matter of fact, such is the usual location of the disease causing deafness in the deaf and dumb and blindness in blind children. In both cases the corresponding cortical centres, A or V, is permanently out of the circuit, and a less habitual route has to be chosen to complete the circuit. In the blind, A-Sp., the usual route for the ingoing of accurately expressed ideas, is still open, the education of the child proceeds apace, and touch is made to take the place of sight. But in the deaf, A-Sp. is unused, and Sp. as a motor centre with storing power is lost to the brain, unless where speech is developed through some other channel than hearing. It is true that by a verbal language, such as writing or the manual alphabet, accurately expressed ideas may be conveyed, the ingoing being by V and the outgoing by W to the hand. But Sp. remains unused, so that the finger-taught deaf child has lost two storing centres, Sp. and A, whilst the orally-taught deaf has lost only A (see Fig. 6, *A* and *B*).

Within the brain education may theoretically be hindered by damage to any of the four centres, Sp., A, V, or the group W M G, or to the fibres associating these centres. As a matter of clinical experience, damage takes place in both situations, but in children such damage is limited in practice to the centres, the associating tracts being seldom affected in those who are capable of attending school at all.

In *true motor aphasia* of adults the centre Sp. is damaged. The damage is commonly due to embolism of, or bleeding

from, a vessel leading to the lobe or convolution of Broca, in which the centre for speech is placed.

Although a speech centre exists on both sides of the brain, the working centre has come by heredity to be placed, in right-handed people, on the left side of the brain, and in left-handed people on the right side.

In children this speech centre is occasionally congenitaliy imperfect, and we have those cases of dumbness with perfect hearing, and otherwise normal intelligence, which come to the schools for the deaf and dumb for admission (congenital aphasia).

When aphasia occurs in an adult it occurs suddenly; all memories of words which have been spoken by the patient are destroyed or much impaired, and, unless he be one of those who has been able to carry on his silent thought without the medium of internal speech, his mental processes are also greatly impaired.

Word-deafness may be also either congenital or acquired. Hearing for musical sounds, or even for the letters which compose words, may be and is usually perfect, but the auditory memories for spoken words are destroyed. Internal speech, if the patient has been a strong "auditive," is interfered with, for the patient can no longer carry out that mental audition which formed part of his processes of silent thought. If he has been a strong "visual," accustomed to take direct from the page without the intervention of internal speech, he can still read, the mental disturbance is less, and the disturbance to motor speech is but slight.

In *word-blindness* the process of memorizing written or printed words is interfered with. In other respects sight may be, and usually is, perfect, and, apart from the difficulty of learning to read, the child in a congenital case may be a bright pupil.

There can be no doubt that, whilst these cases of

congenital word-blindness are not common, they occur amongst school children, and account for some of the cases of almost inscrutable backwardness in language which occur in otherwise bright children.

The following case, quoted from Dr. Hinshelwood, illustrates the difficulty in a case of congenital word-blindness:

"A boy, aged 11 years, was at school for four and a half years, but was finally sent away because he could not be taught to read. His father informed me that he was a considerable time at school before the defect was noted, as he had such an excellent memory that he learned his lessons by heart; in fact, his first little reading-book he knew by heart, so that whenever it came to his turn he could from memory repeat his lesson, although he could not read the words. His father also informed me that in every respect, unless in his inability to learn to read, the boy seemed quite as intelligent as any of his brothers and sisters. His auditory memory was excellent, and better than that of any of the other members of the family. When a passage was repeated to him aloud he could commit it to memory very rapidly.

"When I first saw the boy and his father at the Glasgow Eye Infirmary I asked them to call on me at my house, and I wrote down the address on an envelope. A few days thereafter the father could not find the envelope, but the boy at once repeated the address correctly, having remembered it from hearing me state it once.

"I examined the boy first on March 4, 1900, when he seemed a smart and intelligent lad for his years. He knew the alphabet by heart, repeating it rapidly and correctly. He could recognize by sight, however, only a very few letters, and those not with any degree of certainty. He could spell correctly most simple words of one syllable, such as 'cat,' 'dog,' 'man,' 'boy,' etc., but he could not recognize by sight the simplest and commonest words, such as 'the,' 'of,' 'in,' etc. He had no difficulty in recognizing all other visual objects, such as faces, places, and pictures. On each page of the little primer in which I tested him there was a picture of some object which was followed by some simple letterpress about it. He at once recognized each picture, *e. g.*, a cat. I would then ask him to spell the word, which he nearly always did quite correctly. On asking him to pick out the word 'cat' on the page he was unable to do it. I repeated this experiment on page after page of the little primer. On testing him with figures I found that he could repeat from memory fluently and correctly numbers up to 100. He could also perform mentally simple sums of addition. He could not, however, recognize all the figures by sight, but he knew them better than the letters, and recognized a greater number of them.

"Since March 4 I have seen the boy every week; I last saw him

on April 22. I asked the father to keep him constantly practising at his alphabet, and at the figures up to 50. By dint of constant and persevering practice during these seven weeks he is now able to recognize many letters of the alphabet, but he has not mastered them all. Still, the result of the seven weeks' work gives us the hope that by perseverance he will gradually acquire the power of recognizing the letters by sight. Whether he will ever be able to acquire the visual memory of words, so as to read by sight, is, however, very doubtful. The task of acquiring the visual memory of words is immensely greater than that of acquiring the visual memory of letters, of which there are but fifty-two in the English alphabet, including capital and small letters. But if he acquires the visual memory of the letters he will be able to read slowly by spelling out aloud each word letter by letter, and thus appealing to his auditory memory, which is excellent. His progress with the figures was much more rapid. He can now recognize them all up to 50. His father has always observed that he did not experience the same difficulty with figures as with letters. As his father expressed it, 'they came more readily to him.'"

We now come to a group of children, the mentally deficient, in which the abnormal conditions which obtain in the brain are essentially different from anything we have yet seen. In all the cases yet considered, an end organ, the ear or the eye, or both, have been damaged, or a language centre, that for sight or hearing, or both, are either congenitally or postnatally diseased. The effect of these changes is to disturb the processes of thought, but the effect is not serious or profound where the centre for speech is not involved. Except, therefore, in the deaf, the problem before the educator is not a difficult one, for it is easy to educate the speech centre by a less used route where hearing is not destroyed.

But in the mentally deficient it is in marked contrast to all this. The language centres are either perfect or but slightly deficient. The eye affection, if one exist, is usually a refraction error, which may be corrected by lenses. Hearing is usually perfect. Speech may be perfect, but if it be absent or very deficient, it is not because the speech center is diseased, but because the child has no ideas to

express. He is probably the subject of a lesion of the frontal lobes of the brain, where the higher psychical centres are placed. In the blind, in the deaf, and in the aphasic these higher psychical centers are perfect, and it is merely a question of taking trouble along the right lines, on the part of the teacher, in order to fit the pupil for the work of life. With the mentally deficient, except in the slightest cases, taking trouble along any line or lines is repaid by but poor results, and the child never becomes anything but a pitiable dependent on the efforts of others.

Throughout this paper hints with regard to the education of abnormal children have necessarily been dropped, but general principles on which their education should be conducted may now be drawn:

1. It is useless hammering along a ruined tract or along a sound tract toward a ruined centre in the hope of imparting knowledge to a really deaf and blind child. It is better to use a circuitous though less used route. To ignore this principle is like pulling a bell with the wire broken, or knocking at the door of a tenantless house. In the *very* deaf and the *very* blind, therefore, slight remains of sight and hearing are useless and should be ignored.

2. Where the remains of sight and hearing are considerable—where in the deaf they serve for the discovery of vowels, consonants, and words; in the blind, for what under favorable conditions of light, etc., is written on a book or a blackboard—these should be used to the utmost. This principle provides for the oro-acoustic education of the semi-deaf and for the education of the semi-blind in smaller classes by the ordinary educational means.

3. When a circuitous route is necessary, education should be directed so that Broca's centre, the hereditary centre for the memory of spoken words, is used. It is not contended that accurate or abstract thinking is impossible if this centre be ignored; but if it be ignored, a highly

specialized brain centre is left out, and the mechanism of thought has to be conducted without one of its most valuable resources. Now, inasmuch as blindness leaves the tract A-Sp. intact, the lines on which the education of the blind must proceed are simple; but educators of the deaf differ as to whether, seeing A is destroyed, it is worth while reaching Sp. by a circuitous route. Thus, from the physiological side there is raised the old war of methods—oralism versus the manual alphabet language. The oralists try to reach Sp., and to reach it through V; the manualists ignore Sp., and establish a new verbal language centre at the group W M G (Fig. 3). Now, in this controversy, physiology takes the side of the oralist. Where V is good, or, in other words, where the child's sight is good, and where the child is not mentally deficient, Sp. can be reached, and in doing so not only is an additional part of the brain used, but this part is the hereditary centre for the memorizing of words. Thought in the orally taught deaf should, according to physiology, be more accurate and more rapid. In the blind-deaf, progress along any line is extremely slow, but physiology again points to the great advantage of calling in the regular exercise of the centre for motor speech, and Helen Keller's experience, as we have seen, agrees with the teaching of physiology.

4. In congenital word-deafness and congenital word-blindness our experience is as yet very limited. Many of these cases are never discovered, and are passed off as stupid children, the real cause of the dulness never having been discovered. But when a boy is clever with his hands and good in his games, where the difficulty is chiefly with his acquisition of language, word-deafness and word-blindness should be sought for. Dr. Hinshelwood finds that progress is made in time by the word-blind by repeated short reading lessons, and thinks that this is due to the right side of the brain gradually taking up the duty usually

performed by the left visual centre. But although education in reading may be slow, general intelligence may proceed apace, for the auditory speech path is open.

5. In the teaching of the aphasic child who is not mentally deficient, Broca's convolution on the right side, unless the defect be bilateral, may be made to take up the work of the hereditary speech centre of the left side. Where failure shows that the defect is probably bilateral, education may proceed by the help of writing and the manual alphabet.

6. Mentally deficient children offer a different problem to the educator. These children are found not only in the ordinary elementary schools, but in the schools for the deaf and in those for the blind. The great need of the moment is to recognise their limitations. The deaf who are also mentally deficient cannot be taught orally, and should reside permanently in institutions, even during their adult life. The same provision should be made for the blind who are mentally deficient. The mentally deficient who both hear and see should, if they make slow progress—progress so slow that it offers no prospect of their ever becoming self-supporting—also be provided for permanently in asylums. In the slighter cases, however, special education in smaller classes enables the children to be placed later in their school career in the ordinary classes of the elementary schools.

The writer's idea in this paper is that, having due regard to the physiological indications present, the teacher should be left as free as possible in selecting the method and in ordering the education of the abnormal child. Even at the risk of appearing to restrict the liberty of the teacher, the writer would lay down some other physiological indications with regard to the education of the orally taught deaf—

(*a*) As signs are used very extensively in the early teaching of the hearing child—during his first and second years of

life—there is no physiological reason for suppressing them at the beginning of the school education of the deaf child. They should be used just as they are with hearing children, and excluded, as in the case of the latter, as soon as the more accurate equivalent has been learnt. They are like a finger supporting a child during its first attempts at walking, or like a crutch used during the recovery of the function of a broken limb, or, as the writer has elsewhere spoken of them, they are like the scaffolding necessary during the erection of a building. The finger, the crutch, and the scaffolding must alike go, never again to be used, except in times of danger or great difficulty.

(*b*) During the early years of school life the acquisition of articulate speech should be the chief business of the deaf child. As soon as may be, a vocabulary of common words should be so thoroughly learnt that its use in speech becomes automatic. This means slow intellectual progress during the first two or three years of the deaf child's school life. But it means better intelligence and better language in the end if the school course can be made long enough. Freed from the necessity of giving separate attention to the mechanism of his speech, the child will be able to give his undivided attention to the subject of his thought. Clearly the school period of a deaf child's life cannot be fixed in number of years but by a standard of attainment. In this connection, a distinction must be drawn between the semi-deaf and the semi-mute child on the one hand, and the toto-congenitally deaf child on the other. The latter, when he enters school, has thought in visual symbols or counters for so many years that it is certain that these will always bulk largely in his thought processes. Whether it is worth educating him orally will depend on the length of time the school course is to last and the rate at which he progresses. But the semi-deaf are, like the hearing, largely auditives, and both they and the semi-mute have

a vocabulary which is automatic, and which it should be the first concern of the teacher to preserve. These, therefore, the semi-deaf and the semi-mute, should under all circumstances be taught orally.

(*c*) In the education of the deaf, drawing should follow speech and precede writing. This is the order which has been followed in the history of the human race, it is the order which is naturally followed by the hearing child, and it is the order which will best suit the mental development of the deaf child. The picture-writing of the earlier races, and the early efforts of the young child to imitate, by drawing the things that he sees, are generically the same. The use of conventional written symbols for those other conventional symbols which we call words came later in the history of the race, comes later in the natural history of hearing children, most of whom draw before they go to school, and should come later in the history of the deaf child.

(*d*) Until speech has become automatic no finger-spelling should be known to a deaf child. A combined method, where the combination is that of finger-spelling and speech, is, from the physiological standpoint, to be condemned. This means the banishment of the manual alphabet from the schoolroom of the orally taught for the first years of school life. If the visual and motor speech centres are to be developed for the purposes of speech and lip-reading, the child must not be distracted by the attempt to acquire another set of conventional motor signs like the manual alphabet. In the later years of school life, physiology would not condemn the practice of the manual alphabet by the child whose speech had already become automatic, but in practice, and for reasons quite apart from physiology, it is undesirable to introduce manual spelling into the oral schoolroom at all.

(*e*) The difficulty of procuring automatic speech in the

deaf-born, while necessarily limiting the use of speech by these children, does not mean that it is not worth while teaching them speech. As a means of communication with others speech has an advantage over all other forms of language, which makes its acquisition by all classes of the deaf desirable. In *The Study of the Deaf Child* the writer has taken up this subject at some length, and need not further refer to it here. But the difficulty of procuring automatic speech in the deaf-born points to the great advantage of commencing speech training at a much earlier age than is now the rule, namely, six or seven years. By commencing speech training at two or three years, before the child has become a confirmed "visual," the ultimate value of speech in the processes of thought should be greatly enhanced.

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THE THOUGHT AND LANGUAGE OF THE DEAF-MUTE. AN INQUIRY CONCERNING THE TRUE FOUNDATION OF DEAF-MUTE INSTRUCTION.*—IV.

The mute signs of the congenitally deaf have all the natural characteristics of a real language: they express general conceptions and bring these conceptions into a regular logical connection of thought.

W. Wundt.

Chapter III.

The Sign Language and the Position of the Deaf-Mute with Respect to Word Language.

When we say "All understanding is an understanding through signs," it is not our intention to depreciate word

*Continued from the May number of the *Annals*, page 263.

language, which is of vast importance for the mental development of all people, including the deaf. It seems necessary, however, to revive an understanding of the natural language of signs and its connection with thought; we hope thus to give it the position which it should assume in the education of the deaf.

The natural language of signs is rooted in the natural process of thought as it occurs whenever man learns anything or judges of anything. This wonderful connection between the psychical and the physical is mirrored in every conception. In connection with the thought process of consciousness every one may learn his own procedure in the act of perception and of comprehension connected therewith. In the preceding chapter we have shown how the pictures of the parts of an idea are interwoven with the pictures of one's own procedure in the act of comprehending and combining the things observed, so that the one picture calls forth the other. We readily recognize the similarity existing between our psychical comprehension of individual things and the characteristeric reproduction of them by depicting them in outward movements. In the natural sign language we thus deal with a simple relation of similarity which Lipps in his "*Leitfaden der Psychologie*" defines as follows: "In every psychical process there exists a tendency to produce similar psychical processes."

In the natural sign language of the deaf-mute the striving of the mind for expression consists in briefly and clearly characterizing the thing observed and judged. There is here no pedantic repainting line after line, no detailed copying, imitating, and mimicking all the movements which were made by the eyes and hands in order to arrive at an object. Such a process is neither in the economy of the mind nor in the interest of verbal communication. The sign gives only a hint and suggestion of how the mind

proceeds in understanding and in thinking. The spoken word indeed has no other purpose; but it does not serve the purpose as naturally or as rapidly as does the gesture.

There flies a bird! My little deaf-mute pupil very spiritedly makes the sign for flying by imitating with raised hands the fluttering motion of the bird's wings. He thus strives to designate the flying bird, and also his conception of the idea. How has the deaf-mute acquired this sign? We want to explain this process psychologically, and in so doing to remove the old prejudices against the sign language. When the little deaf-mute consciously saw a bird for the first time cannot be determined, and so it is with a hundred other things. An idea requires development, and development is life. By an indeterminate number of processes of recognition which life causes, the deaf-mute has come to the firmly established sign for bird, so that the sight of a single bird produces in him the tendency to perform a movement similar to the fluttering of a bird's wings. This action is comprehensible to us if with active sympathy we strive to reproduce in our own experience what passes in the mind of the child when it perceives something with interest. The child sees a bird of prey hovering above its quarry. He first perceives the rapid beating of the bird's wing; he recognizes in the changing picture the "up" and "down" of the motion. Unconsciously he raises his arms or places his hands on both sides of his breast and moves them up and down. He can comprehend the motions of the bird only by his own bodily motions, which he performs in a similar manner to his pattern, the bird. The child by means of his personal life process thinks himself into the situation of the bird; he assumes—even if only in "imaginary" movements—the position of the bird with his body, possibly even gazes downward as though also looking for prey. How tense his muscles become, if the bird suddenly

shoots downward and again rises and flies away with its booty in its talons! It seems to him as though he were going through all the movements which his eye follows with so much interest; he is in them "with life and soul," as one may here truly say. The mind strives to unify the whole incident and to characterize it in a brief picture. From the whole number of motions observed, one striking and apparently essential movement is taken and the total process is thus symbolized. The fluttering movement of the wings is reproduced in the upward and downward movement of the hands, and thus a language sign is produced by means of which the mind can recur to the whole occurrence and its real cause.

The charge has always been made against the sign language, as we shall presently see, that it holds fast to the sensuous conception, which it only "mirrors" or "copies." But this is not true. If it were true, any mental activity of the deaf-mute would be impossible; his thought would not assume the character of human thought. When the deaf-mute strives to characterize the process of perception and finally symbolizes it in a certain sign, he stands on the basis of conceptive thought, and proceeds in exactly the same manner as we do. The human mind never stops with the sensuous conception, for "all conception is comprehension." Why do *we* comprehend the sign with which the deaf-mute describes the flying bird? Because in the act of perception we act precisely as he does. We too must derive from the act of perception a picture which we obtain with the aid of physical movements. If the word "bird" is called out to us, we must quickly construct a picture which calls to mind the idea. If we think of "flying," we try to go through the motion with our arms, even if only in feeble inceptions; if we imagine the action of pecking, it appears to us as though we wanted to look on the ground and carry out the necessary movements

with the mouth; if we think, "Ah, an animal with feathers!" we seek with our eyes and hands on our body for the soft dress of feathers. These facts cannot be denied; any one who analyzes psychological processes will clearly perceive them. We too must sign the content of the idea in movement expressions, if we desire to comprehend the word and become conscious of its thought content. It is true that we generally go through these movements only in muscular inceptions, in the "imagination," as we said in the preceding chapter; but they cannot be wholly suppressed, for that would mean the suppression of thought itself. From the physiological observation of the process we perceive that the innervation occurs as the first impetus, and only then does the interception of the movement follow, which may not appear visibly but still announces itself to the consciousness. The deaf-mute, however, in his signs performs the corresponding movement in connection with every conscious process of thought; he even at times expands it and accompanies it with expressive movements of his face and eyes. No *fundamental* difference can in any case be perceived between the thought of the deaf-mute and our own, between his action and our conduct. In the processes which lead to the formation of the sign, the thought is experienced, as it were, in greater dimensions. This life process we must not suppress in the deaf-mute, if his thought is to attain power and clearness. With the suppression of signs one clips the wings of the mind and undermines its natural self-activity. Without this original activity, which finds expression with the deaf-mute only in signs, his thought does not attain to the clearness which is necessary to overcome the difficulties of verbal language. The sign language is and remains the *primary* indication of the formation of ideas and the *primary* basis of comprehension.

I cannot here quote everything that others have said

regarding the sign language; it would not conform to the purpose of this treatise. Our object, as has been stated, is to obtain a comprehension of the true connection between thought, speech, and the sign language, and on the basis of this knowledge to form a correct opinion of the latter. We must, however, not wholly disregard the opinions of others. We will therefore quote from a few men, whose idea of the nature of the sign language and of thought has dominated in the development of the education of the deaf in Germany.

Rössler, a highly-regarded teacher of the deaf of his time, in his treatise entitled, "*Einige Fragen über die Gebärdensprache*" (Osnabruck, 1868), makes an interesting (but to us of historical interest only) comparison between the sign language and word language, from which we quote the most important passage:

"The sign language unites the thought to the thing, to the sensuous perception, and renders it more objective; the word disunites it from the thing, raises it above the sensuous perception, and renders it purely mental, abstractive, ideal. . . .

"The sign language confines the mind to the field of observation and renders the deaf-mute incapable of rising above the perception to general conceptions. Word language, on the other hand, is the language for conceptions and ideas. It disunites the thought from the thing, leads to the formation of conceptions, and enables the mind logically to utilize the products of thought, to develop the thought and the mind. . . .

"Word language is logical, conforming to the laws of thought, and is regularly developed; the sign language is an undeveloped language of nature."

In his "*Anweisung für Volkschullehrer zur zweckmässigen Vorbereitung taubstummer Kinder auf den Eintritt in eine Taubstummen-Anstalt*" (1858) Rössler writes as follows:

"Since verbal designation does not enter into the perceptions of the deaf as it does into those of hearing persons, these perceptions can not unite themselves with language. The deaf-mute therefore cannot raise his perceptions, as we do, to a free (!) conception, cannot

retain and combine them in language signs. He rather retains the impressions or perceptions themselves (!). Instead of a conception embodied in a word, he has in his mind a picture of the thing. In remembering an object, an occurrence, etc., the sensuous impression received, the picture of it, appears in his consciousness. He therefore thinks in perceptions or in pictures and scenes."

It is hardly necessary to call attention to the errors in this comparison, especially in the characterization of the sign language. Whoever comprehends the axiom that "perception is comprehension" will recognize the fallacy in the statement. We shall have more to say concerning the separating of the concrete thought from the abstract, and concerning the logical character of the sign language, in the concluding part of this treatise.

Another well-known theorist, K. U. Schöttle, in his "*Lehrbuch der Taubstummen-Bildung*" (Esslingen, 1874) offer us a dogma in the line of "traditional logic" and "verbalism," on the basis of which he naturally comes to an unfavorable opinion concerning the sign language and to an exaggerated estimate of the value of word language. He writes as follows:

"Word language designates not only the ideas of objects, qualities, activities, etc., but also these objects, qualities, activities, etc., themselves. It stands therefore in a relation not only to thought, but also to perception; it is even the means of producing and fixing ideas upon and out of the basis of the conception. . . .

"Whatever is created in the mind by the mere perception of an object or phenomenon is only a *mirrored picture** of the thing perceived, which contains all its characteristics, essential and accidental, in a true reflection. But if the object is named, the name includes only the unity of such characteristics as make the object essentially the object named and in naming it all non-essential characteristics are stripped off (!). How different, for instance, a table may appear according to the nature of its material, size, shape, parts, and purpose! What the perception of a single table may produce in the mind of the observer is only a mirrored conception of the table in question. On the other hand, in the word "table" all the variable non-essentials are stripped off and only the essential that makes a table of the object

*The italics are mine.

in question is expressed. The word has therefore abstracted the essential from the non-essential, and from the mirrored conception it has made the abstracted essential into an idea and has fixed it in itself, *i. e.*, has made itself (!) a vehicle of such ideas and has thus become the means of detaching and fixing the ideas. But it is also the means of making the ideas recognized under certain categories and placing them in the most variable combinations; therefore, also, the means of characterizing and relating ideas. . . .

"The hearing child is placed in an environment of observations, experiences, and needs, and has in this way received the objects (!) which radiate in his mind as mirrored conceptions. Now persons about him name and speak of the objects perceived, and by this naming the mirrored conceptions in the child are formed into ideas and thoughts; they are therefore abstracted from the child's perception; the ideas are fixed, and the child is enabled to think in characterized and associated ideas and express his thoughts vocally. But where a child does not acquire verbal language, it will always lack the means of abstracting, fixing, characterizing, and determining ideas. I do not say that all and every mental development must therefore be retarded. For perception itself acts on the human mind and arouses in it conceptions in the retaining, recalling, changing, and combining of which it can attest, use, and develop its activity. But this mental activity is not thinking in real ideas; it is not normal; it is occupied with mirrored pictures; it is abnormal human thinking."

J. Vatter, of Frankfort-on-the-Main, the strongest champion of the pure oral method, in general agrees with Schöttle's ideas concerning the process of thought, and expresses himself as follows:

"While word language is able to name things, circumstances, etc., the sign language possesses only the ability of representation; it cannot name or form real ideas. In the course of our work we have called signs mirrored pictures. As we do not care to regard our picture seen in the mirror as our name, so we will not acknowledge the sign made for an object as its name. The sign language is able to represent things, actions, etc., but there can be no separation or classification of signs, as, for instance, into nouns, verbs, and adjectives, nor can there be any designation of moods or cases. Signs, moreover, cannot be logically arranged and combined.*

*See J. Vatter, "*Die deutsche Sprache und ihre methodisch-praktische Behandlung in der Taubstummenschule,*" Frankfort-on-the-Main, 1881.

In the report of the Frankfort Institution for the year 1879–'80, Mr. Vatter further writes:

"The sign language does not in the least conform to the pure German method of instruction. Every teacher of the deaf knows the character of the sign language and its diametrical (!) opposition to verbal language as well as its evil influence upon the latter. . . . The pure German method recognizes no so-called preparatory instruction by means of signs." (Page 14.)

In his book: "*Die Ausbildung des Taubstummen in der Lautsprache*," II part, page 6 (Frankfort-on-the-Main, 1892), Mr. Vatter in speaking of "direct association with speech" gives the following advice:

Proceed from the direct perception! The pupil must be led to conceptions and ideas by the direct perception of real things, activities, etc.; perception suffices, and signs are wholly unnecessary, as unnecessary as an oil lamp in a sunlit room."

We plainly perceive from the above quotations that the men named all proceed from the idea of a fundamental difference between perception and comprehension, and therefore misunderstand the nature of thought. They cling to an objective opposition between concrete and abstract thought, between concrete and abstract ideas. They regard the word as the *Deus ex machina*, so to speak, which should be able with one stroke to free the thought of the deaf-mute from the evil condition into which it has been brought by the sign language.

We will consider briefly a few questions relating to this subject; this is the more necessary since the fallacies connected therewith appear to be transmitted from generation to generation.

The opinion that the deaf-mute thinks in "mirrored pictures" is wholly wrong. From the instance already cited of how the deaf-mute child comes to the idea "bird," we have demonstrated that he strives in the same manner as we do to unify his conceptions and that he seeks to

characterize this unity in his gesture. He possesses as well as we "the function of arranging conceptions." His mental activity does not exhaust itself with the mere copying of the things observed, but everywhere he strives for reasonable connection. His gesture signs by no means show that his mind deals with mirrored pictures, for they consist of a characteristic feature drawn from the picture, from the series of movements which mind and body employed in the perception. Our perception is never complete; we never see everything; in fact, many things we do not wish to see; we pass them by, because they do not lie in the direction of our attention, because, perhaps, they oppose our endeavor for unity, or because they have no connection with the purpose which the whole is to produce. Thus every perception creates within us a general picture, a "general form" of the idea, as we have stated above, and therefore every idea, no matter out of what perception it is derived, is abstract. The conception of the idea which is back of the sign made by a deaf-mute is also abstract; just as abstract as that expressed by a word.

Now what is meant when we speak of concrete and abstract ideas?

Our ideas differ vastly in the number of associations combining them into a unity. This we instantly recognize and feel. A so-called abstract idea, *i. e.*, a "higher abstraction," produces in us the notion that we have before us a wide field of relations, a rich sphere of experience, that it therefore costs the mind effort and time to "master" it. Other ideas show fewer relations and we feel and are conscious that one can soon master them; these are generally called concrete ideas. We thus have these contrasts: rich in associations, poor in associations; hard to master, easy to master; this, however, is not a fundamental difference.

Here I may state that the sign language has always been

accused of being unable, in a certain degree, to express abstract ideas clearly and unequivocally. Is this surprising, when one remembers that from the great range of relations, as well as from the large number of processes of thought, which must be passed through in order to survey an abstract idea, it is very difficult to find a characteristic feature which points unequivocally to the combining process of thought? It requires great acuteness of intellect and ripe experience to comprehend "higher abstractions," to render them perceptible to the senses, and to symbolize their content. This is often achieved only by God-inspired artists, and cannot be expected of the mentally inexperienced deaf-mute*. He either does not touch these spheres, or he approaches them slowly, even when possessed of verbal language.

But we must now strive to get back of the real sense of concrete and abstract. For this purpose we must again view the process of thought. In every idea we deal with individual certainties, with parts of an idea which are regularly combined by it. Now if one idea is subordinate to another and higher one, the higher idea is a "higher unity" with more relations and more parts than the subordinate one; it therefore also comes more into contact with reality, *i. e.*, the concrete. The higher abstraction is therefore nothing more than a greater concreteness. The abstract here includes the concrete; there exists no real opposition between the two; they unite in the thing. "Concrete

*From this some might receive the impression that abstracts possess no pictorial character, that we cannot think them in a picture, and that signs are therefore wholly excluded. What does the reader think, or what does he imagine for the moment, if I here introduce the word "politics" before his eyes? The imagination seeks a point of contact in all directions; one thinks of a newspaper and how politics are discussed therein, or of Bismarck, or of the Reichstag; the pictures formed correspond to the extent of the idea; a characteristic general picture does not exist. The content of the idea would fill a book.

thinking consists in proceeding from individualities to grasp the law of unity, and abstract thinking consists in conducting the mind from unity, from totality, to individuality and singularity."* The abstract penetrates the concrete and the abstract-concrete is lacking in no abstracting process; there is therefore also an abstract abstract-concrete, etc. The question regarding the nature of this connection is based on the knowledge that in the perception the pictorial character preponderates, but only preponderates, while in the combination the analysis and the organizing activity are more noticeable. Therefore every idea must be regarded as concrete as well as abstract; it is a question only of the trend of our thought, of the starting point of our preponderating manner of conception. If, for instance, I first regard a house from the point of view of its actual component parts, as the roof, the gable, the floors, the stairway, the rooms, etc., and then regard the purpose of the whole as a place designed for living in, I first think of the idea "house" as chiefly concrete, which in this case I express in signs as a three-cornered gable with right-angled substructure, and then proceed in thought and signs to the details, as floors, rooms, windows, doors, etc., which I think of chiefly in the abstract. That is the whole story in a nutshell.

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*See C. *v. Brockdorff*, "*Die Geschichte der Philosophie.*"

[TO BE CONTINUED.]

THE SIGN LANGUAGE. A MANUAL OF SIGNS.*—VI.

Measurement of Time, Space, and Quantity.

Time.—Crook the forefinger of right "G" hand and with the tip end tap the back of the left "S" hand. Or,

(2) Upon the palm of the left open hand held edgewise pointing outward, describe a circle with the right "T" hand.

Period of time.—Hold out the open left hand palm up and pointing outward; pass the right "G" hand along the length of the left palm.

Time (a short period of).—Place the right "H" hand, pointing outward, across the left "B" hand held in front pointing toward the right; with a scraping motion move it back and forth along the top of the forefinger of the left hand.

Day.—Hold the right "G" hand out, pointing away from the body toward the right side, the arm held straight from the elbow; place the open left hand against the arm near the elbow and holding it there turn the right arm with the elbow as a pivot toward the left and describe a semicircle with the right hand. When the right hand comes to rest it should be near the left arm pointing to the elbow. Sometimes the sign is made the other way, by placing the right hand near the left elbow, as in the last position, first and moving it from left to right.

Note: Any part of the day may be indicated by stopping the hand in the sign when it points at the position of the sun at the designated time, as the hand is supposed to represent the course of the sun.

Night.—Place the hands and arms in position as if about

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to sign for "day" but move the hand down and describe a semicircle below the arm from right to left, thus representing the course of the sun during the period of time from set of sun to its rising.

Morning.—Extend the right arm as in day, but with the open hand palm up; place the edge of the left open hand upon the forearm near the elbow. Or,

(2) Instead of placing the left hand so far back place it on the wrist.

Noon.—With the left hand against the right arm as in "day" hold the right "B" hand pointing directly overhead or pointed slightly out, indicating the position of the sun at noon.

Evening, Night.—Rest the wrist with the bent right hand upon the edge of the left "B" hand and turn the hand downward.

Forenoon.—Indicate by passing the arm in the sign for "day" across that part of the arc between morning and noon.

Afternoon.—Indicate by passing the arm in the sign for "day" across that part of the arc between noon and evening.

NOTE: To indicate very early in the morning let the right hand point more down than straight out, according to the earliness of the hour. And in late at night likewise let the right hand point down more than usual.

Sunrise.—Hold out the left open hand, palm down, to represent the horizon; pass the right "O" hand from under the left and bring it up above the left close to the outer edge and thus represent the sun peeping up.

Sunset.—Hold left hand as above but place the right "O" hand just above the edge of the left and drop it below.

Now.—Place the bent hands pointing outward, palms up, in front, about the waist line; drop them a little rather quickly.

To-day.—First sign "day" and then follow with "now."

To-morrow.—Place the right "A" hand against the right cheek with the thumb pointing backward; give the hand a twist outward so that the thumb, describing a semicircle, points to the front while the hand is brought out beyond the face.

Yesterday.—Place the "Y" hand with the end of the thumb at the corner of the mouth; throw the hand back and bring the thumb against the cheek again near the ear, or carry it a little farther back and throw it over the shoulder.

In a few days.—Place the "A" hand against the cheek as in "to-morrow;" give the hand a similar motion as in "to-morrow" but more slowly; gradually bring the fingers out one by one as in "few" (see preceding pages). Or,

(2) Sign for "few," "days," and "after." "After" is signed as follows:

After.—Place the left "B" or open hand in front, palm toward self and the right open hand in same position with palm of fingers flat against the back of the left-hand fingers; hold the left hand still and push the right hand out and away from it. Or,

(2) Hold the left "B" hand palm down but with outer edge turned slightly down half way; across the back of it pass the right "B" hand so the edge strikes first the top edge of the left hand and then points suddenly down.

Before.—Same position as in "after," but with the hands reversed so that the right hand is on the inside, and draw the right hand toward self. Or,

(2) Hold the left open hand pointing upward and back of hand toward self; right hand in position as above and draw toward self.

Daily, Every day.—Place the "A" hand against the cheek as in "to-morrow;" push it straight forward a little beyond the cheek; repeat the motion several times. Or,

(2) Make sign for "every" (see preceding pages) and "day."

A few days ago.—Place "A" hand with the end of the thumb against corner of the mouth; holding the thumb still there, draw the hand back and gradually open out the fingers one by one until the hand assumes the position of "5." Or,

(2) Sign "few," "days," and "ago." "Ago" is signed as follows:

Ago.—Throw the right hand back over the right shoulder with the palm backward.

Week.—Clap the hands together crosswise, raise the right forefinger to represent "one."

Next week, or *In a week.*—Same sign for week, but when the hand is raised to make "one" it is thrown forward to indicate it is in the future. Any number of weeks in the future may be indicated by making any number on the fingers and throwing the hand forward.

Last week, A week ago.—Make sign for "week" and then throw hand back over shoulder, palm back.

Month.—Hold out the left "G" hand, forefinger pointing upward; beginning at the upper end of the left forefinger, draw the end of the forefinger of the right "G" hand down its entire length. "Next month" is indicated by following the sign by the sign for "future" (see preceding pages), and last month is indicated by following the sign by that for "ago" (see above).

Weekly is indicated by repeating the sign for "week" two or three times, each time throwing the forefinger forward from the hand.

Monthly is indicated by repeating the sign for "month" two or three times.

Year.—Place the "S" hands one above the other; with the right hand now encircle the left, passing the hand outward, and bring to rest in original position.

Yearly.—Strike the top of the left "S" hand with the bottom of the right "S" hand thrown outward against it, and as it strikes extend the forefinger of the right hand and move the hand outward beyond the left; repeat two or three times.

Hour.—Upon the palm of the left open hand held straight out, representing the dial of a clock, place the right "G" hand with the forefinger pointing upward, representing the hand of the clock; with the right forefinger now circle the face of the palm as a hand would circle the face of a clock.

NOTE: Using the forefinger of the "G" hand almost any part of the hour may be indicated. Thus, fifteen minutes after any hour is indicated by pointing the forefinger at the position of the hand at 3 on the palm; half after, by pointing the finger at 6, and so on.

Minute, A moment, etc.—Place the forefinger of right "G" hand as in "hour" and move it the least bit to the right, indicating the space of the clock passed by the minute-hand in one minute. This sign may often be interpreted as "in a moment." For "a moment ago" move the forefinger backward the same space.

Second.—Place the forefinger of "G" hand on the left palm as above where the second hand is on the dial of a watch and move it rapidly around.

Always, Forever.—With arm and elbow at side, hold out the right "G" hand pointing outward; move the hand along out, describing a circle with the end of the forefinger.

Never.—Hold out the right "B" hand to the front straight from the side, and with the hand describe a complete circle from left to right, not moving the elbow out of its position; when the hand returns to its starting point draw it slightly to the right; then throw it out at the right side. Some use the "G" instead of the "B" hand.

Once.—Dip the end of the forefinger of the right "G"

hand against the palm of the left open hand, bringing it away quickly.

Twice, Thrice, etc.—are indicated by making the sign twice or thrice and raising the fingers to indicate the number of times.

Sometimes.—Repeat the sign for "once" several times. The sign made slowly or rapidly indicates whether it is frequent or seldom.

Again.—Holding out the bent right hand with palm partly up give it a slight twist, turning the palm toward the left, and strike the end against the open palm of the left hand.

Often.—Repeat the sign for "again" several times.

First.—Hold the thumb of "A" hand up perpendicular and strike it with the forefinger of the right "G" hand.

Last.—Extend the little finger of the left "A" hand and with a downward motion strike it with the forefinger of the right "G" hand.

Near.—Hold the left bent hand, palm toward self, over toward the right side and draw the right open hand toward it so its palm approaches the back of the left hand.

Next (nearest).—Holding the left bent hand out in front, palm toward self, and the right open hand between it and the body, throw the right hand over the left and bring its palm quickly against the back of the left.

Next (after the first).—Hold out the left "L" hand with the forefinger of the right "G" hand pointed just over and across it; giving the wrist a twist bring the right forefinger around the end of the left forefinger and up against its underside.

Now, The present.—Hold the bent hands in front of self, palms up; with a slight jerk lower them a little.

Then.—Strike the end of the forefinger of the left "L" hand with the end of the forefinger of the right "G" hand. Or,

(2) Holding the left "L" hand pointing toward the right strike the thumb with the forefinger of the right "G" hand; quickly close the left forefinger and drop the right hand down just outside of the left so the palm side of the right fingers barely touches the knuckles or middle joints of the left hand; then extend left forefinger again and strike it with the forefinger of the right "G" hand.

When.—Hold the forefinger of the left "G" hand pointing upward, palm side toward self; point the forefinger of the right "G" hand at its end; describe a circle with the right forefinger and then touch the end of the left forefinger with the end of the right forefinger.

During, While.—Hold the "G" hand straight out in front from the sides but back almost to the sides; push both hands straight out, one on either side.

Much.—Hold the "5" hands so their palms are toward each other, and draw them apart. It is usual to draw the left hand a little downward toward the left while the right hand is drawn upward toward the right. The extent to which they are drawn apart indicates the quantity.

Little.—In the closed "O" hand rub the end of the thumb against the end of the forefinger.

Small.—Hold the open hands out palm toward palm and press them toward each other, repeating several times.

Large.—Hold the "L" hands palm to palm and draw them apart.

Inch.—Extend, then bend the thumb of the left "A" hand and enclose the space between its end and middle joint between the forefinger and thumb of the right hand.

Foot.—Extend the thumbs of the "A" hands and then hold them together horizontally, thumb end to thumb end, and hold up one finger for "1."

Measure.—Make sign for "foot" and move it along separating and touching the thumb ends. Hold the thumbs in the direction the measuring is supposed to be done.

Yard.—Draw a yard along the arm, as one would in measuring cloth.

Mile.—Hold out the right bent hand in front from the side and drop it; then lift it a little, move it forward and bring it down again.

Monday.—Describe a small circle with the "M" hand.

Tuesday, Wednesday, Friday, and *Saturday* are all made with the same motion of the hand as above (*i. e.*, describing a small circle) using the "T," "W," "F," and "S" hands respectively.

Thursday.—The "T" hand is quickly changed to "H" and the same motion is made. Some make the "H" only.

Sunday.—Raise the open hands, one on either side, to the level with the shoulders, palms outward.

Spring.—Draw the crooked forefinger of the right "G" hand across the forehead, then sign for "grow," *i. e.*, push the right "&" hand up through the left "O" hand.

Summer.—Draw the crooked forefinger of the "G" hand across the forehead.

Winter.—Hold the "S" hands out to the front from the sides and shake the whole of the forearms and hands together as in "cold."

Fall.—Hold the left "S" hand up near the left shoulder, doubling the arm; downward against the lower end of the forearm near the elbow pass the right open hand, palm downward, so the forefinger of the right hand brushes against the arm.

Breakfast.—Sign "eat" (raise the right "&" hand to the mouth) and "morning" (see preceding pages).

Dinner.—Sign "eat" as above, then "noon" (see preceding pages).

Supper.—Sign "eat" as above, then "evening" (see preceding pages).

Since.—Place the forefingers of the "G" hands above the right shoulder, end to end, but not touching; giving each a

turn so the ends describe circles opposite each other, bring them both forward to the front.

Not yet.—Same as "now" or "late," depending on use.

Late.—Hold the right open hand pointing down from the elbow extending out at the side, and swing it back and forward from the wrist.

Holiday.—Sign "idle" and "day."

Beyond.—Place the open hands in front, palms toward self and together, so the palms of the fingers of the right are against the backs of the left fingers; lifting the right hand a little, carry it out some distance toward the front and drop it to original level.

Place.—With the ends of the little fingers of the "I" hands meeting (thumbs at top) end to end, draw each away at the side and describe a half circle, bringing them to meet again nearer the body.

Where.—Extend the open hands, palm up, from the side out to the front and give them a side to side shake with a look of inquiry on the face.

Here.—Bring open hands, palms up, near the body, end to end but not touching, and let each describe a small circle in opposite directions outward, coming toward each other again nearer the body.

There.—Point to a distance.

Centre.—Describing a circle with the right open hand above the palm of the left open hand, drop it into the centre of the palm.

Yet, Still.—Place the right "Y" hand at the side and carry it out straight forward from the side. This also conveys the idea of continuity.

J. SCHUYLER LONG,
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[TO BE CONTINUED.]

EAR WORK IN THE WISCONSIN SCHOOL.

AFTER I had had some experience in teaching the deaf it became apparent to me that large numbers of children could be benefited by ear work. But it was not until Mr. Walker's second year that I had an opportunity of a trial of this work.

It will be admitted by all that speech is the natural means of communication. It then there is a possibility, however slight, that a child may accomplish this, it seems to me that it is our duty to give that child his chance.

It is always easier to follow nature, which goes along the lines of least resistance. We positively know where the speech area is located, what brain area governs it. When we teach speech through the eye or through the touch we create a new centre or area which has not yet been located. Since the speech area in all human beings is a determined area, the human brain in the past must have selected that particular area and therefore it is the fittest. If we can follow nature by teaching the ear and brain to hear, and the speech centre to respond, it must be easier than to create a new centre and area.

Sound usually gives pleasure and it is worth while to increase the pleasure of the deaf. The sound of a word may be perfectly heard and yet awaken no response in a child because there is no alignment between his speech centre and his ear, or he may not yet have a speech centre or area; for the modern anatomist tells us that we must make our own speech areas, that we are not born with them. "No human being was ever yet born with a word," and that is a hopeful sign for our work.

By using the ear, that is, by trying to hear, the child

comes to recognize the spoken word and that repeated again and again will finally fix the sound of the word so that it is known at once when heard.

Granted, then, that there are many in our schools who could be benefited by ear work, what would the ideal conditions be under which these children should be placed?

All children upon entering school should have their hearing tested. At that time they have not learned to read lips and the test is easier. If they have enough hearing to distinguish consonant sounds they should be given a trial. It will soon develop whether they are capable of going on with the work.

The grading is a very difficult matter because you will scarcely find two of the same degree of hearing. Because a child hears a whistle or a bell or a scream it is no sign he can be taught through the ear, or even develop any more hearing.

In making the test through our school I have found that some children can hear a word and repeat it perfectly but have no idea of its meaning, which shows the lack of ear training. It is as when *we* hear a word in a foreign language. It means nothing to us, but when we have heard it used properly a great many times we finally make it our own; the case of the deaf is exactly the same.

As soon as possible I would begin work in vibration; for this we use a piano. With children who have weak and harsh voices, keyed too low or too high, it is often the means of great improvement if the work is begun early enough. As a general thing the children love the music period and are always ready to work, and some of them even imagine they can sing; the effort they make in trying to sing strengthens the voice, often modulates it and takes out the harshness, giving it smoothness, naturalness, and flexibility. Very soon they begin to distinguish rhythm and keep time perfectly and are able to tell the number of

beats to a measure. In a few cases children have become able to recognize certain tunes although they themselves could not sing. Aside from all this, music in an aural class has the same value relatively as in a hearing school; the children are rested and quieted by it. Often when the class is tired or things have not been going smoothly, if I play for them a little while their mood and temper take on joyousness again.

I have never used any appliances in my regular work, deeming it better that the children should depend on their ears entirely. In teaching new or difficult words I use the Vibratory Conversation Tube. It is easy to manage and inexpensive; it intensifies sound so that it is a great help.

It has always seemed to me that if children became used to appliances in school they would be dependent on them when they go out into life, thus making it much harder for them to get along. Another reason for not using them is that I never let go of lip-reading and ear and eye work together. I am often astonished at how much children get through the eye when they and I think they are hearing. But place a child of this character with his back to you and see the difference. Now lip-reading is so valuable that we cannot neglect it for a moment, and, furthermore, a child may at any time lose what little hearing he has and be entirely dependent on lip-reading. Still in ear work we can not remind ourselves too often that we are *teaching to hear*. Visitors will often say, "Why, these children hear; no wonder they speak naturally and have good voices and understand what you say." But these same persons do not themselves understand that we have actually created their hearing in the sense that they are conscious of it now and are willing to use it as a means of intelligent communication.

If any one is under the impression that this is easy work,

let me disabuse him of that notion at once. It is not. The strain on the teacher's voice and nerves is far greater than in the other work. More volume is required, of course. It has to be modified to suit the degree of hearing in each individual case. Therefore the classes should be small in number. The children should if possible be about the same age. I am beginning to think that this is very important, for with the older ones just beginning not so much is possible from the general work, because the organs have passed to the stage where development is retarded, while the younger ones are often capable of taking much from the general work that is not individual. The older ones coming in for the first time are not lacking in attention and concentration, and the demands upon them for this kind of work should be much more prolonged than that given to younger children. For instance, a boy of ten and one of twenty should *never* be in the same class. The child of ten requires rest periods and change of work that are really harmful to the twenty-year-old boy, and the older one is capable of a continued application in one subject that means mental paralysis to the child. In the main the children should be of the same grade so that the drill work may be class work, which cannot be done if there are two or, worse yet, three grades in the same class.

None of the children have enough hearing to get what is not individually directed. In a district school the children hear unconsciously, they must, they can't help it, and many of the youngest get much from the recitation, but nobody has yet thought that the conditions under which a district school is obliged to work are ideal or even desirable. In our work the first requirements are individual drill and individual work. It must be so; therefore, the classes of from five to seven pupils of about the same age are absolutely necessary for the best results.

We have had in our school in all twenty-four pupils

under instruction under the aural method since we began this work in 1903. The first two years the class had six members each year, the third and fourth years five members, and last year ten members were enrolled. This year there are six members.

There are many others in the school who would be benefited by ear work, and some who could learn new words more easily and hear their own voices through the tube. In testing the hearing of 196 children there are four who have above 75 per cent. of hearing, seven above 40 per cent., and five above 30 per cent. But their ages and grades are so diverse that it would take three classes to dispose of them to the best advantage. The test was made with and without the tube on (1) vowel sounds, (2) consonant sounds, (3) musical sounds, and (4) words.

In my mind there is no question regarding the benefit the children receive from the ear work, and when they come back in the fall and tell me how much they have used and enjoyed their hearing, I am well paid for the hard work during the year.

I am well aware that some educators of the deaf say that those of the (congenitally) deaf who have as high as 75 per cent. of hearing and yet do not approach normal speech are lacking in mental equipment; in some cases that is true, but not in all. I could name several who have as quick and keen minds as the general run.

When children have a high percentage of hearing and yet do not speak distinctly it is often due to neglect during babyhood, when the parent has neither time nor ability to help the child speak distinctly; their hearing being defective, they keep the speech of babyhood in all its indistinctness.

The ear gives us another avenue of approach. Children in schools where the combined method is in vogue ought to be mentally quickened above the average if the ear

is cultivated in addition to the other two methods, that is, oral and manual.

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DRESSMAKING FOR DEAF GIRLS.

It is only within the last year that I have had access to papers and magazines published in the interest of the deaf, and I have been greatly impressed with the truth of what I have read in regard to their thorough industrial training. But almost all appears to be written with reference to the boy. It seems to me that it is, if anything, even more important that the girl be given a trade that the world is willing to pay for. Her mere necessities are more expensive than his, and her physical powers much weaker. She needs industrial training more than the boy, for the same reason that a weak boy needs skill more than a strong one.

In the case of hearing girls there may be a question whether it pays to give much time or money to industrial training, for the destiny of the average normal woman is marriage, and home-making her life work. But is this true of deaf girls? I have no statistics on the subject, but I cannot think it likely. She usually leaves school before she is old enough to have formed any lasting attachment, and goes home where she is almost a stranger. Her friends speak her language but imperfectly and her infirmity forbids her using theirs freely. Quite possibly she is the only one of her class in the whole village or neighborhood. As she can mingle with hearing people only in a limited degree, the pleasures of church and society, as others enjoy them, are utterly denied her. Then if she has

no regular work to occupy head and hands she is to be pitied indeed.

But unless we know how to do our work as well or better than others we shall not be wanted. For every one understands that deafness is always a disadvantage and in competition with the hearing we must have something to overcome this.

Those trades and callings that are clamoring for workers are the ones we should concentrate most effort upon. In all the trades open to women, I doubt if there is one, unless it may be cooking and general housework, where work is as plentiful as in dressmaking. Wages are good, and, besides, one is always welcome among her friends; indeed I believe the average woman would be pleasant to old Satan himself if he could cut and fit clothes.

Perhaps I could not illustrate my meaning better than by relating my own experience. I am not a deaf-mute; that is, I did not lose my hearing until after I had passed school age. I can talk all right, but I hear so little that it does not help me much. I was the only daughter of a fairly well-to-do farmer. My time was fully occupied at home while we lived on the farm, but when we left that I found I must be busy if I would be happy. As I enjoyed sewing I took up dressmaking. I soon had, in the little country village where we were, more work than I could do.

Six years ago we moved to the college town of Ann Arbor. I knew no one there, but a neighbor heard I was a dressmaker and engaged me for a few days' work. She recommended me to a friend, and she to another, and so on and on, until in less than six months I had to cry a halt.

I had invested no capital beyond a dollar or so for fashion journals and patterns and I was earning quite as much as an ordinary teacher or clerk. If I was tired or sick and wished to stop for a little while, I need not lose my

place. No one seemed to be anxious to take my job; indeed my employers often thanked me for my work as if I had done them a favor.

When my brother graduated we moved to Flint. Though for various reasons I have not tried here for work, I can see by what has come to me that a little effort on my part would bring all I could do.

I could have lived without the money I have earned, but no one can estimate what the work has been to me. I never go to church, and very seldom make a social call. The work took me out of myself and thrust me among others. I arrived in the morning sure of a welcome and pleasant work to occupy my hands. True, I heard very little news, but I saw new sights and found food for many pleasant thoughts. Though I was sometimes very tired, it certainly was gratifying to know that for the time being I and my work were the most interesting things in the house, at least to the women folks.

Of course I know it would not be possible or desirable for every deaf girl to be a dressmaker, but I do think every school for the deaf should give those girls who have the talent for it the opportunity to learn this trade as well as they could in the best city shops, and every intelligent deaf girl should be taught some useful trade so well that there could be no question about her finding employment. Ornamental occupations are all very well for those who have special gifts, but it seems to me that it is more laudable to make a well-fitting dress or cook a good meal than it is to be a mediocre teacher, paint poor pictures, or fill indifferently dozens of honorable positions.

What a girl can do the best is her best trade, and more than likely that is some humble, useful craft of which the world stands very much in need.

LUCY TAYLOR,
Flint, Michigan.

COMPULSORY EDUCATION FOR THE DEAF.

EVERY State in the Union provides for the education of its deaf; most States have one or more well-equipped institutions. Owing to their affliction, deaf children cannot be taught in the ordinary public schools. Therefore the State furnishes special schools where they can be educated free of cost to the parents. As it is not possible to have such a school in every town and district, nearly every State supports one or more boarding schools.

By this arrangement, large numbers of deaf children are brought together and their schools are graded like the public schools. This makes possible the special kind of instruction which their affliction demands. In these schools, the teachers are trained in methods specially adapted to the needs of the deaf.

The foundation of all education is language. A deaf child, entering school at the age of six or seven, is on the same language plane as a baby just beginning to lisp words. His progress in the use of language does not increase at the same rate as the baby's. The hearing child imbibes language unconsciously from hearing the same words thousands of times. But with the terrible handicap of deafness every singe word has to be taught. Not one word is acquired by the deaf child without effort.

The earlier a deaf child's education is begun the better. A serious problem is that of the half-grown boy or girl who enters school without any language. He may be able to copy writing, but it is purely mechanical, as he does not understand one word that he copies. For instance, he writes *cat*, *dog*, *boy*, etc., but he has no idea that he is a boy or that the written word *dog* means the animal by his side.

I have in mind two boys, both sixteen years old, who

entered school last fall for the first time. They are both bright, industrious lads, but through the criminal neglect of parents or guardians they are absolutely ignorant. They must suffer the humiliation of being in a class with six-year-old children to learn the elements of language.

With all the advantages offered free by the State schools, parents of deaf children frequently will not send them to school.

In many cases, it is a mistaken idea of kindness and love for the afflicted child which makes them humor him in every whim. Through pity for his deafness they will keep him at home to be petted and spoiled and further handicapped by ignorance. They do not realize that it is only by education that they can even partially make up to him the loss of his hearing.

In other cases where deaf children are not sent to school, it is because the parents want them to work. Many deaf children are put to work in factories and households before they are of proper age.

In Pennsylvania, within a radius of twenty miles of the Institution where I am now teaching, there are a dozen deaf children who ought to be in school. Strenuous efforts have been made to induce the parents to send them, but to no purpose as yet.

This condition of affairs would not exist if there were a law for the compulsory education of the deaf.

Unfortunately the present law for compulsory education in Pennsylvania does not apply to the deaf, because it does not compel a parent to send a child away from home to live. Most of the people who will not send their children to school are too poor to employ a private teacher, therefore the children are growing up uneducated.

There is a deaf girl, fourteen years old, living less than a hundred miles from the capital of this State, who can neither read nor write. Her father is a gruff, evil-tempered man,

who keeps her at home to work. The clergy, the mayor, a judge, teachers, and the best people in the community have done their utmost to induce this man to let his daughter go to school; so far only insults have rewarded their efforts. The girl herself begs to go.

Another case is the deaf son of a well-to-do farmer living near an Institution. The boy was put in school and allowed to stay about three months, the family visiting him every week. At the end of three months the father took him home because he loved him so; he could not bear the separation, even for the good of his son. The boy is now attending the district school, where he can do practically nothing but copy writing, which he does not understand. When this boy is about grown (he is now ten) he will probably he sent to school again. Those loving, but selfish, parents will then expect the teacher to accomplish results which their own selfishness has made impossible.

There is a deaf boy living near this Institution whose mother is a poor scrub-woman, supporting herself, her mother, and five children. In trying to show the mother the boy's need of an education, I asked what she expected to do with him when he got older. She replied, "I know he's got to be learned; I guess I'll have to put down my work and learn him myself." Then as she lifted the boy on her lap she remarked that he was very heavy. I agreed that he was rather fat. "It's not that," she said, "it's because he is a dummy; all dummies are that way." And she aspires to teach the boy!

In Pennsylvania, the large number of foreigners who do not speak English make it especially hard to convince them of the advantages the State schools offer. Within the last year I have visited a score of foreign families where there are deaf children. Invariably they regard me as a suspicious character, trying to steal away their child for some mercenary motive. Frequently the priests are the only

ones who can convince them that I have no sinister designs upon their offspring. Without the priests' influence, we should be sadly at a loss to know how to deal with them, as the law gives no help.

I found a little deaf girl in a Slavonic family. The father, a consumptive mother, and seven children live in two rooms on one dollar and sixty cents a day. On my fifth visit of persuasion, the father agreed to let the little girl go to school. But when I showed an application paper, with the printed questions as to the child's age, parentage, cause of deafness, etc., he became perfectly panic-stricken at the idea of putting his name to any paper. We had to go together to the priest and have it all explained over and over again before he would believe that he was not signing away all rights to his child.

These visits and arguments waste much of the child's valuable school time. In the case of the Slavonic child, it took more than a year to get her in school after she was of school age.

If we had a law to compel these people to send the deaf as well as the hearing children to school, no such time would be wasted. And there would be fewer deaf children growing up in ignorance, to become a menace to society and the State.

If compulsory education is necessary for the hearing, how much more necessary it is for the child laboring under the terrible disadvantage of deafness! Without an education how can he compete with his more fortunate brother in the struggle for a living?

Friends of the deaf all over the United States feel the need of a compulsory education law for the deaf. So far as I am able to learn, Washington, North Dakota, Utah, Ohio, Indiana, and North Carolina are the only States which have it.

In the last Pennsylvania legislature strong efforts were made to get a bill through for compulsory education of the

deaf, but, for some unknown reason, it failed. And many a helpless deaf child is being defrauded of his birthright—an education.

ADELAIDE H. PYBAS,
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OUTDOOR SPORTS AND THEIR RELATION TO PUPILS' DEVELOPMENT.

UNDER this heading, I wish to call attention to some of the far-reaching effects that sports have on our deaf boys. The object of the school, as I understand it, is to so fit a boy that when he leaves it he is prepared, as far as can be, to make an all-round man, physically, mentally, and morally. I shall try to show briefly that sports and games play an important part in the plan of work.

The desire to play is inborn and must find expression in some way. We see it in the frolicsome antics of the young of animals, all of which pass through a stage where they run, jump, gambol, indulge in real play. It is seen in children at a very early age, and the ability to play increases with their physical development. Their play, at first consisting of random movements, develops later into games of distinctive character.

Play aids both the mental and physical development of a child, and is a right which every boy and girl should have. They should have the time and place to play. Mr. Joseph Lee has said that "the boy without a playground is father to the man without a job; and a boy with a bad playground is father to the man with a job that had better never have existed." The want of attention given to this phase of the playgrounds question, in the crowded conditions of our modern city life, has undoubtedly helped

to fill our reformatories and penal institutions. Judge Lindsay, speaking from his wide experience, says, "It is no longer a question that playgrounds do more to prevent crime than jails, courts, and policemen." This subject is having the serious attention of educators and public men throughout the country. As an illustration of what some cities are doing, Chicago has spent $11,000,000 on playgrounds in the last ten years. New York, in the same time, has spent $16,000,000. We are indeed fortunate at the Pennsylvania Institution for the Deaf that our grounds afford such ample space for outdoor sports and games for each department.

The educational value of sports is each year being more and more recognized. To our deaf boys they are of great importance. They enlarge his horizon by bringing him into contact with many normal people, and give him added interests in life. Through them he has to meet business people, and has to make himself understood. He has to raise money and spend it so as to get the most out of it. Outdoor sports prove their usefulness in many ways. They are strong moral agents. Rightly conducted, they improve discipline and have a strong influence for good on the formation of character. They develop a spirit of fairness and give a boy ideals to work for, both moral and physical. They make for health and strength. They take a boy into the open air, send the blood flowing faster through his arteries and veins, build up muscle and brawn, and help to fit him for a man's work in life.

As man in the embryo reproduces the various stages through which he has passed, so the boy in his games reproduces the struggles of the race. In his fight for existence, food, safety, primeval man depends on his fleetness of foot, his ability to strike a blow with his fists or a stick as a weapon, his ability to see and take advantage of any openings. These same qualities are

demanded in games. In games a boy runs, jumps, strikes blows, seizes advantage of any opening that presents itself. Man, at first individual, later grew into family and tribal relations, and so to-day we have games in which individual prowess is the end in view, as in wrestling or fencing. The tribal wars are represented in such games as football. There are to-day games as old as civilization. The game of ball has been played in some form from remote antiquity and was undoubtedly one of the first games in which an object was introduced, the first ball being probably a smooth stone.

I think I may safely say that in every boy there is an element of the savage, and that sports act as a safety-valve for this side of his character, and keep him many times from vicious mischief. The effect of games on character is definite. They are productive of self-control, moral and physical courage, originality, and they also stimulate mental activity. No one is quicker to recognize fairness than a boy, and a deaf boy is fully as quick to see it as his hearing brother. There is no place where it makes a more lasting impression than on the athletic field. There, too, he is taught the lesson of self-control; for no boy plays a game well who loses his temper, or gets so excited that his ideas become confused. In team work he learns to give up personal ambition in order to improve the work of the team as a whole. Here, also, he learns to subject himself to the will of others, to take orders, and to work with others for a common end.

This spirit of fairness, self-control, obedience, makes a deep impression on a boy when his character is forming, and is often most lasting. For this reason all games should be carefully regulated and closely supervised. Dr. George J. Fisher, speaking of London, says that "after an experience of twenty years, juvenile control is largely a matter of athletics."

Physically, sports and games develop the neural as well as the muscular organs and, according to Dr. Theodore Hough, "give that physical endurance which the special conditions of each individual in life require." Regarding the physical conditions of the deaf boys at this Institution, my observation is that with few exceptions they are stronger and better prepared to play strenuous games than the boys of their own age on visiting teams. I attribute this largely to the clockwork regularity of their living, to their good food, regular exercise, daily shower-baths, and the constant oversight of their general health. The modern idea of good physical condition is not that of the hard-bunched muscular development of the old-time prize-fighter, but rather symmetrical development, a good heart, good lungs, organs that will keep the body in health, and muscles that will respond accurately and quickly to the work demanded of them. For this reason specialization in any one line of work is discouraged, as it tends to the development of one part more than another. This tendency is not so marked in games as in track and field sports, but still the tendency exists and must be guarded against.

During the winter basket-ball is played in the gymnasium, but most of the games take the boys into the open air. The exercise accelerates the heart beat, the lungs take in more oxygen, muscles are put on a stretch and relaxed, old tissue is used up to be replaced with strong, healthy tissue. It is a well known fact that muscle grows with exercise. During the hard work of a football season, the boys frequently gain weight. Their skin, in place of being soft and flabby, clears up and becomes firm. Digestion is improved. The eyes brighten. They eat and sleep well. The boy in every way is better fitted to do mental or physical work.

Sports at the school are conducted through an organiza-

tion of the boys, the "P. I. D. & D. Athletic Association." The Association has as its officers a president, vice-president, secretary, and treasurer, with managers and captains of teams. All business transacted must be first brought before a meeting of the Association. As the school has no enclosed grounds the boys are cut off from gate receipts and depend on dues, voluntary contributions, and entertainments, to raise the necessary amount of money for their equipment and meeting the expenses of visiting teams. Under the supervision of the physical director, the managers schedule games for their respective teams, arrange expenses, buy the necessary uniforms, etc., etc. The physical director also helps coach the teams in practice and has a general oversight of the games. The boys are encouraged to do all the actual business themselves, figure their expenses, and pay their bills, advice and direction being given when needed. There is an important training in this which must prove very useful to our deaf boys when they leave school. Through their sports and games they are brought into business relationship with hearing people, into contact with them socially, and are thus preparing to meet future conditions in life. Through the games, too, a good school spirit is encouraged which makes itself felt through all departments. Outdoor sports are valuable to our deaf boys through their all-round development of character as well as through their effect on the physical well-being.

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THE AMERICAN ASSOCIATION MEETING.

THE Eighth Summer Meeting of the American Association to Promote the Teaching of Speech to the Deaf was held in Chicago beginning Monday night, June 28, and

ending Monday noon, July 5, 1909. The various sessions, with two exceptions, were held in the College Building of the Chicago Normal Training School at Sixty-ninth street and Stewart avenue, Englewood. On Sunday afternoon the session was held at Hull House on Halsted street: and on Monday morning of the last day at the Chicago Beach Hotel on the lake front at Fifty-first street. Other than the opening session on Monday night and the one held at Hull House, the sessions occupied the morning hours, the afternoons and nights being given over to lectures, entertainments, theatre parties, and sight-seeing trips around Chicago.

The opening session was presided over by Miss Mary McCowen, Chairman of the Local Committee. After an invocation by the Rev. W. S. Trowbridge of St. Bartholomew's Church, and vocal and instrumental music, the first address of welcome was made by Superintendent Orville T. Bright, a Supervising Principal of the Chicago Public Schools: and the other, by Dr. Ella Flagg Young, Principal of the Chicago Normal School, who, since the meeting, has been made Superintendent of the Chicago public school system, succeeding an educator of international reputation, Edwin G. Cooley, resigned. The selection of Dr. Young is the first instance of a woman being elected to such a position in any large city; and all those whose pleasure it was personally to meet and converse with Mrs. Young will be more than pleased to rejoice over the new and high honor bestowed upon her. The response on behalf of the Association to these addresses of welcome was made by the writer; he was followed by Dr. A. L. E. Crouter, who delivered the President's address.

The number in attendance was large, exceeding that of the Edgewood Park meeting in 1906. The register enrollment was 255, of whom 205 were active members, 22 honorary members, and 28 deaf boys and girls taking

part in practical demonstration of schoolroom work. Thirty-one schools (not including day-schools) were represented by their principal executive; and thirty-five States and countries were represented by active members, as follows:

Austria, 1; China, 1; Colorado, 2; Connecticut, 1; District of Columbia, 1; Florida, 1; Illinois, 50; Indiana, 10; Iowa, 7; Kansas, 3; Kentucky, 10; Louisiana, 1; Manitoba, 1; Maryland, 4; Massachusetts, 4; Michigan, 16; Minnesota, 9; Mississippi,2; Missouri, 3; Montana, 2; Nebraska, 4; New York, 8; North Carolina, 7; North Dakota, 1; Ohio, 6; Ontario, 2; Oregon, 1; Pennsylvania, 19; Quebec, 1; Rhode Island, 2; Texas, 1; Utah, 2; Virginia, 2; Washington, 1; Wisconsin, 19.

The total membership of the Association at the present time, counting only the active voting or dues-paying members, is 622.

The work of each morning session was divided into three periods; the first (9.00 to 9.45) was devoted to class-work demonstration by pupils of the Chicago day-schools under the supervision of Miss Mary McCowen and Mrs. Cornelia Bingham-Eggers and various teachers; the second (10.00 to 10.30) was devoted to classes in Melville Bell Speech Symbols in charge of Miss Caroline A. Yale; and the third (10.45 to 1.00) was devoted to the general session with presentation of prepared papers and discussions. The morning programme had been arranged with care and good decision as to subject matter, and the writer recalls no Association or Convention meeting when the programme was more full of merit and more comprehensive in scope.

The only criticism to be offered is that too much was crowded into each morning session to permit of serious and satisfactory consideration and discussion, the latter of which, if properly conducted, is sometimes of more vital importance than anything else. Much time and

thought may have been spent in the preparation of a paper to be read, but a good, spirited discussion of it on the floor serves to emphasize its strong parts and, not infrequently, illuminate the weak spots in what the legal fraternity would term an *ex parte* statement. This criticism of an over-crowded programme, however, applies to all of our professional meetings; and it is to be hoped that some change along the line of preparing programmes will be made in the future, resulting in fewer and stronger papers, and more serious and extended discussion. In this connection attention is called to the action of the Utah Convention in 1908, which passed a resolution as follows:

Resolved: 1. That the programme for the meetings of the Convention shall be prepared a year before the meeting.

2. That all papers to be read shall be submitted to the Executive Committee in duplicate not later than March 1, before the meeting.

3. That members shall be assigned to discuss all papers.

4. That those so assigned shall have copies of the papers to be read before the meeting.

5. That the number of papers and the time occupied by each shall be strictly limited.

6. That the Vice-President shall have general charge of the programme.

The writer would add that it might be well to provide also for the preparation of a few papers, perhaps half a dozen upon assigned subjects, which are not to be read at the meeting but inserted in the published proceedings, these papers to be of general nature equally interesting to all teachers of the deaf, and of historical or analytical consideration of various phases of our work.

The Hull House meeting on Sunday afternoon was for the purpose of discussing problems connected with the Sunday occupation of deaf children. This discussion was participated in by Superintendents Crouter, Dobyns, Westervelt, R. O. Johnson, and Goodwin, and by Misses Yale, McCowen, Dumon, and Wittermeyer. Following the discussion, Mr. Milton Fairchild, Special Instructor,

Moral Education Board, gave a very interesting illustrated lecture on Morals.

At the Monday morning meeting at the Chicago Beach Hotel, General Secretary Booth, of the Association, presented the International Report. Then came the reports of various committees, followed by the annual business meeting, at which Dr. Alexander Graham Bell and Mrs. Gardiner G. Hubbard, both of Washington, D. C., Dr. A. L. E. Crouter of Pennsylvania, Miss Mary McCowen of Chicago, and Mr. J. W. Blattner of Texas, were reelected as directors for the term of three years ending in 1912. Spread upon the minutes, which were read, was a most interesting and valuable account of the development of the phonograph by Dr. Bell. Mr. R. O. Johnson, on behalf of both the Association and Convention committees on Extension of the Carnegie Endowment Fund, reported progress (very slow, however) and stated that obstacles had been encountered in the effort to have the fund so extended as to cover superintendents, principals, and teachers of the deaf: but that at a recent meeting consisting of four of the six members of the two committees new plans had developed for prosecuting the work. He asked that the Association committee for the purpose be continued, which was granted. After the passage of many resolutions, as customary at the close of conventions, the meeting adjourned *sine die.*

The meeting of the Board of Directors of the Association then convened and routine business was transacted. Mrs. Annetta T. Mills, of the Chefoo, China, School for the Deaf was present and made request that the movement for the education of the deaf in China be incorporated under a board of directors which would have the power, legal and otherwise, to receive and dispense bequests made it for the purpose, and generally to supervise the movement; that this incorporating board be the Board

of Directors of the Association, or, if of other membership, under the auspices of the Association, which should extend its influence in aid of and stand sponsor for the undertaking. Reference was also made by others to the fact that India, and perhaps Persia, contemplated similar requests. After much discussion the whole matter was referred to a special committee consisting of Richard O. Johnson of Indiana, Chairman; Edwin A. Gruver and Edmund Lyon of New York, and President A. L. E. Crouter of Pennsylvania, *ex officio*, which was thoroughly to consider the whole matter in all its phases, financial, legal, and otherwise, and make report to the Board of Directors at some future time. Mrs. Mills remarked that she was in America to stay until some definite arrangement along the line indicated was made, even if it took a year.

Mrs. Mills was accompanied to Chicago by a little Chinese deaf boy, Ziao Fong by name, who is a pupil in her school in Chefoo and now about ten years of age. The boy's father is an employee in the custom house in Tientsin and was very anxious to have his son accompany Mrs. Mills on her trip to America, thinking it would be of value in the acquisition of the English language. Little Mr. Fong speaks and reads the lips to some extent, makes use of the manual alphabet, and is able to write in both English and Chinese. He will attend the Rochester School this coming year. Ziao is a bright little chap and speedily became a great favorite with everybody. His autograph in Chinese was sought for by many; this he willingly gave but suggested ten cents as the price thereof, which was gladly given. And everybody said, "Rah! for Ziao Fong and Mrs. Mills!"

The social side of the meeting was a pleasing one to all. There was an informal reception by the Chicago Oral Teachers' Club on the opening night. The members of this club placed their services at the request of visiting Association members at all times, and led various parties

on land and lake excursions, "L" road rides, to theatres, art galleries, and on auto explorations. On one night a reception with a dance was given in Hamilton Park Field House which was participated in by all of the Association members.

On Tuesday night the Hon. Francis G. Blair, State Superintendent of Public Instruction of Illinois, delivered a brilliant address on educational advances at the Art Institute on Michigan avenue. His address was one of the great intellectual treats of the Association meeting; with thought clear-cut and incisive, and with marvellously rapid yet perfectly clear enunciation, his intensity of purpose was an inspiration to those who heard him. Prior to the address Mr. Blair was greeted by a few at a private dinner at St. Hubert's Grill.

On Wednesday afternoon an entertainment was given by deaf children in the College Auditorium. The exercises consisted of gymnastic drills, dances, a recitation, and two piano solos. These were followed by a short Revolutionary play, depicting first a scene on Boston Common before the war; and then, after the war, a colonial party, ending with Washington's farewell speech to the army. The performance reflected great credit upon both the pupils and their teachers having it in charge.

The banquet was held at the Auditorium Hotel on Thursday night and was very largely attended. The menu was all that could be desired and "the feast of reason and flow of soul" following the grosser material part was excellent. Miss McCowen and Mrs. Bingham-Eggers had all arrangements in hand and presented one of the pleasing features of the meeting. The toast list follows:

Toastmaster—Richard O. Johnson, Indiana.

Piano Solo, - - - - - - - Miss Bessie O'Connell.
The North, - - - - - - - Mr. John W. Jones, Ohio.
The South, - - - - - - - Mr. E. McK. Goodwin, North Carolina.

The East, - - - - - - -	Dr. A. L. E. Crouter, Pennsylvania.
The West, - - - - - - -	Mr. Frank M. Driggs, Utah.
Sketches en Route, - - -	Mr. Harris Taylor, New York.
Vocal Solo, - - - - - - -	Miss Mae Hildreth.
A Common Meeting Ground,-	Mrs. Marian Foster Washburne, Chicago.

In addition to the formal addresses assigned, several impromptu responses were made to toasts suggested by the toastmaster, among them one by Mr. E. S. Thompson of Mt. Airy, who spoke feelingly of "The Ladies." And the absent wives, sweethearts, and beaux were not overlooked, but called to memory. Beginning at seven o'clock, it was nearly midnight when the party dispersed after singing "Auld Lang Syne."

The class-work demonstration with pupils of the Chicago day-schools during the first period of each morning's session (9.00 to 9.45) was of excellent quality and of great interest and value to all. The speech-reading and rhythmic work of the pupils was of high order, really remarkable, and reflect very great credit upon the Chicago day-schools. The work covered the elementary, intermediate, and grammar grades, and the various subjects dealt with were as follows: vocabulary work, news items, expression with material, plan work showing oral and written language, geographical plan work and geography, arithmetic, grammar, rhythmic work. Those in charge of the work were Mrs. Bingham-Eggers and the Misses Mirrielees, Plumbe, Taylor, Newlee, and Knisely, teachers in the day-schools.

At one of the sessions Miss Anna C. Reinhardt, of the Home School for Little Deaf Children, Kensington, Maryland, had with her a young pupil two years of age. The little girl, totally deaf the writer understands, could speak a few words, and short sentences such as "I love you," and was able to read the words from the lips. The little one's home is in Denver and Miss Reinhardt was on her way thither.

Industrial education was the theme scheduled for Tuesday morning and a number of papers and addresses were provided for, the first being a paper by Superintendent E. W. Walker of Wisconsin, upon "The Cultural Value of Industrial Education." Other papers and addresses were as follows: "The Educational Possibilities of Book Binding," by Mr. Oscar L. McMurray, who is the head of the manual training department in the Chicago Normal College; "Drawing as a Means of Expression," by Mrs. Antoinette Miller, instructor of art in the Normal College; "Industrial Training in a State Institution for the Deaf," by Superintendent F. M. Driggs of Utah; "The American Industrial Journal," by Mr. Warren Robinson of Delavan; and "The Correlation of Schools and Shops," by Mr. Elmer D. Read of Edgewood Park. Mr. McMurray and Mrs. Miller in the course of their addresses presented samples, specimens, and various charts illustrating their work and the possibilities thereof. The final number on the programme for the morning was an address by Mr. George William Eggers, head of the department of art in the Normal College, his subject being "An Interpretation of the Relation of Art and Manual Training." Much to the regret of everybody, Mr. Eggers, owing to the lateness of the hour, begged to be excused and his address was not given.

The periods of educational development may be briefly referred to as the World Renaissance, the Beginning of American Education, the Revolutionary Stimulus, and the American Renaissance led by Horace Mann and his contemporaries. This question of industrial education is one that is now overshadowing all other questions of educational nature, and rightly so. The industrial agitation ushering in the 1900's (and it is world-wide) may be referred to as the fifth great period of educational development, in which the whole educational system will be

more or less changed because of it. The people are demanding it; the boys and girls both need it; and the establishment of thorough industrial and vocational training in conjunction with literary curricula, or by itself in separate schools, is now being agitated with such force and right as to make its call heard by schools everywhere.

The general trend of education at present is toward a combination of cultural and utilitarian processes, toward vocational schools. Industrial training is permeating the class-room everywhere, from the little country school to the great university; and with such force that old-time specious argument cannot withstand its just demands.

In the establishment of vocational schools the schools for the deaf throughout the country assumed the initiative long years ago and have ever insisted upon co-ordinating the head, the heart, and the hand with cultural-utilitarian end in view, whatever the subject or line of work. But, withal, we have strayed along in an easy-going rut and are not doing at present what the needs of the deaf, the demands of the times, and our bounden duty, require of us.

On Wednesday morning a most interesting talk was given by Dr. D. P. MacMillan of the Child Study Department, Chicago Public Schools, upon laboratory methods of determining the status of deaf children. He was followed by Mr. Harris Taylor of New York, whose subject was, "Oralism in Combined Schools." Mr. Taylor seemed to think such work more or less a failure as it now prevails in combined-system schools and urged radical changes. Some of his strictures were regarded as fair and just, others not so; and in the discussion following, participated in by Superintendents Tate of Minnesota, Jones of Ohio, Tillinghast of Oregon, Westervelt of Rochester, and Crouter of Mt. Airy, the first three were not inclined to accept Mr. Harris's extreme views concerning the perennial question of oralism *versus* signs. Miss Agnes Steinke of Council

Bluffs, Iowa, spoke of "Schoolroom Findings," and Miss Martha C. Bell of Mt. Airy, of "Story Work." Mr. A. J. Winne, State Inspector of Schools for the Deaf in Wisconsin, followed with an interesting stereopticon exhibition showing the various day-schools in that State and describing the pupils and their work.

The session on Thursday was opened by Mrs. Marian Foster Washburne, of Chicago, who spoke of social training that makes for efficiency. An easy and fluent talker, and of fine presence, Mrs. Washburne's excellent address commanded very close attention. Miss Ruchiel Merrielees, of the Chicago day-schools, spoke of beginnings in language and reading, and Miss Frances W. Gawith, of the Clarke School, followed with a talk on reading in primary grades. Other papers were as follows: Miss Ethel M. Hilliard, of Mt. Airy, upon "Corrective Work in Language;" and Miss A. Evelyn Butler, of Mt. Airy, upon "Corrective Work in Speech."

On Friday Mr. Joseph Schara, of the Public School for the Deaf, Vienna, Austria, presented a very complete account of the methods and development of schools for the deaf in Austria, at the same time saying how deeply he was interested in the American work. Mr. Schara has been in the country for some time and is visiting a number of schools for the deaf, closely inspecting their methods of education. Mr. Schara was followed by Miss Amelia DeMotte, of the Indiana School, speaking of the close correlation of language, geography, and history in schoolroom work, and insisting that constant and conscientious attention should be given to this correlation at all times. Mr. Seth M. Gregory, of Delavan, presented a paper upon "Overcoming Limitations on Human Efficiency," and was followed by Miss Frances L. Glenn, of the Indiana School, upon the subject, "The Importance of Training for Teachers of the Deaf." This was one of the most impor-

tant questions to be discussed at the summer meeting and deserved a complete morning session for proper and useful discussion. As the teachers are, so will the school be; and thorough consideration of the training of teachers is of the utmost importance to our schools, which must stand as sponsors for the future of the pupils confided to their care. Such thorough consideration of so large a question cannot be had in an hour, and that hour near the close of a session. Following Miss Glenn's paper some discussion was engaged in by Mrs. Spencer of Milwaukee, Miss Van Adestine of Detroit (her remarks being read by Miss Dumon), Miss McCowen of Chicago, Miss Yale of Northampton, and Mr. Johnson of Indiana. The tenor of both paper and discussion was for more thorough preparation on the part of the teacher; superficial attainments and "general preparedness" will not suffice in this day, when specialized skill of high order is demanded in all lines, and especially so in the training of youth.

Saturday morning, Dr. G. E. Shambaugh, of Chicago, delivered a lecture upon the subject, "The Problem of How We Hear," illustrating his remarks with models, etc. Miss N. Louise Upham, of the North Carolina School, spoke upon "Speech Work" and was followed by Miss Jennie L. Cobb, of the Edgewood Park School, who treated of the "Education of Backward Children." The session was closed by Mr. Milton Fairchild with a lecture on "Morals."

During the course of the meeting several papers prepared for delivery were not read because of absence of the writers, or for want of time, and it was ordered that they be included in the proceedings of the Association and published. The writers of these papers, and subjects written upon, follow: "Preparation for Geography," Clara E. Newlee, Chicago; "Advanced Work in Geography," Elizabeth Strickland, New York City; "Nature Work," Caroline R.

Smith, Mt. Airy; "Cultural Studies for the Deaf," Emma Roberts, Indianapolis; "Literature for Grammar Grades," Samuel G. Davidson, Mt. Airy; "Corrective Work in English," Caroline L. Olin and Frances Lucas, Mt. Airy; Address, "Side Lights," Superintendent Tate of Minnesota; "Physical Training," Grace G. Green, Mt. Airy; "The Unusual Child," A. Reno Margulies, New York City; "Related Number Work," Nora B. Knisely, Chicago; and "The Development of the Equation," Barton Sensenig, Mt. Airy.

During a portion of the time Mr. A. Lincoln Fechheimer, a deaf-mute gentleman of Cincinnati, was in attendance. He is a graduate of the Clarke School, of the Technical School in Cincinnati, of Columbia University, New York, and of the School for Fine Arts, Paris. Mr. Fechheimer spoke most enthusiastically in favor of speech-reading and its great value to him, saying that in his work as an architect he had no trouble in getting along without the use of signs and writing.

In the famous Congressional Library at Washington the names of ten world-famous educators are inlaid in the ceilings. Of these, three are Americans: Thomas H. Gallaudet, Samuel G. Howe, and Horace Mann. We to-day may well point with pride to the fact that these three great American educators have been closely identified with our own work—Thomas H. Gallaudet, the founder of the first school for the deaf in our country; Samuel G. Howe, the educator of Laura Bridgman, deaf and blind; and Horace Mann, during his whole life closely allied to and interested in schools for the deaf. And significant facts they are, too, that Dr. Howe, as member of the State Board of Charities of Massachusetts, and Mr. Mann, as Secretary of the State Board of Education of the same State, insisted that schools for the deaf were part and

parcel of the free school system of the State and not charitable institutions!

The benefits to accrue to teachers by attendance upon Association or Convention meetings is beyond question. Sixty years ago, Horace Mann, than whom, in my estimation, no man has exerted a greater influence upon the trend of American education, out of the depths of his mighty thought said, in speaking of teachers' associations: "The teacher who has met a hundred of his fellow teachers in a public assembly, and communed with them for days, enlightening his own judgment by the results of their experiences, and kindling his own enthusiasm by their fires, goes back to his schoolroom with the light of a hundred minds in his head, and with the zeal of a hundred bosoms burning in his heart. * * * How cheering and sustaining to him must be such opportunities when the errors of others may become admonitions to him, and the successes of others may be used for his guidance. * * * Still better is it when the teachers of schools and the superintendents of schools can meet together and render reciprocal aid in the discharge of their respective duties. Whatever wisdom the country possesses on the subject of education may be brought into common stock, and by self-multiplying process the whole of it may be carried away by each individual. At least, so much of the whole may be carried away by each as he has capacity to receive. * * * What are the duties of a school teacher? I have not time to enumerate or define them. I cannot even mention the names of the long catalogue, but I will call your attention to one which comes very near to embracing all. By this one I mean thoroughness in everything you teach. Thoroughness—thoroughness—and again I say, thoroughness, is the secret of success."

And in conclusion permit me to say to you, teachers and readers, ponder well the above words of Horace Mann;

let them sink deeply in your memory to be recalled daily as you go about your work. And when the day's work is done, let your conscience measure your work performed in answer to your own questions addressed to your own heart: Was I thoroughly prepared? Was my teaching thoroughly done? Did I enter thoroughly into the spirit of the work? Did I adapt myself thoroughly to the child? Am I a thorough teacher? What was true in the days of Mann is true to-day. Education of self—"to-day, to-morrow, and for all of our days, to the end that we may possess character, ability of adaptation, and scholarship," —and then, thoroughness, always thoroughness, is indeed the secret and measure of our success. And withal, let us not forget that we build for the future, for our children, and for our children's children, and let us pray God that we may leave to them the rich heritage of well-trained minds, and bodies, and souls.

"For time is hastening on, and we
What our fathers are, soon shall be—
Mere shadow shapes of memory."

RICHARD OTTO JOHNSON,
Superintendent of the Indiana School,
Indianapolis, Indiana.

SCHOOL ITEMS.

American School.—Miss Fannie C. Smith has resigned to live at home. She is succeeded by Miss Florence J. Ensworth, who was trained in the Normal Department of Gallaudet College.

Arkansas Institute.—Mr. Isaac B. Gardner, for several years a teacher in the New York Institution, has been elected Superintendent in the place of Mr. A. G. Mashburn.

California Institution.—After fifty-two years of continuous service as a teacher of the deaf, forty-four of them as Principal

of this Institution, Dr. Warring Wilkinson has resigned his position and the Directors have accepted it to take effect on the first of October, 1909. He has been appointed Principal Emeritus for life, with two-thirds salary for three years, in graceful recognition of the great services he has rendered the Institution during his long tenure of office.

Mr. E. Douglas Keith, who has been with Dr. Wilkinson as clerk for the past twenty years, has been appointed his successor and will assume charge of the Institution on the first of October.

Central New York Institution.—Mr. Howard E. Thompson and Miss Lena B. McNamar have resigned and are succeeded by Miss Alice L. Crampton, from the Institution for Improved Instruction, and Miss Sibyl B. Richards, from the Rhode Island Institute.

An appropriation of $12,000 was received from the Legislature in June. This partly relieves the Institution of a heavy indebtedness.

Clarke School.—Miss Catherine Allison, a graduate of Smith College and also of the Normal Class of the Clarke School, has been added to the corps of teachers.

Eleven students were graduated from the Normal Class in June; one of these is Miss Galene Philadelpheus, who came to this country to fit herself to take charge of a school for deaf children in Turkey. She will, however, remain a second year here before returning.

Colorado School.—Miss Alma L. Chapin leaves to take charge of a private pupil and Miss Alva M. Charles to return to her work in the Illinois School. These places have been filled by the appointment of Miss Mary Lyne, for the past three years a teacher in the Utah School, and Miss Belle Williams, who has been for the last five years a teacher in the Iowa School.

A building has been fitted up during the summer for the use of the small children, who will be entirely separated from the others for the first two or three years of their school life at least. Other minor changes have been made in build-

ings and equipment that should materially increase the efficiency in all departments.

Florida School.—To fill vacancies made by the resignation of Miss Nettie B. Newell and Miss Helen P. James, Miss Fannie Guthrie, from the West Virginia School, and Miss Minnie M. Rupley, from the Nebraska School, have been elected. Miss Ethel M. Cory, of Jacksonville, Illinois, is appointed as an additional oral teacher.

The new building, costing with its equipment $100,000, will be occupied November 1. A hospital costing $7,500 will be erected during the coming year.

Gallaudet College.—Miss Elizabeth Peet, who hitherto has taught in both the Kendall School and the College, will hereafter devote all her time to the College, taking the classes in English and history formerly taught by Dr. Gaw, resigned.

On Presentation Day, May 5, 1909, the honorary degree of Master of Arts was conferred upon Mr. Dwight F. Bangs, Superintendent of the North Dakota School. At the close of the term in June the following degrees were conferred in course. Master of Arts: Arthur L. Roberts, B. A., and H. Lorraine Tracy, B. A., graduates of the College of several years' standing who have pursued advanced courses of reading and study and presented satisfactory theses; Ernestine Faye Ball, M. A., Orville Clark Cone, B. A., Edwin Louis LaCrosse, B. Ph., and Frank Horace Reiter, B. A., Normal Fellows. Bachelor of Arts: Jessie Attaresta Beardsley, Margaret Mary Leveck, Sarah Belle Streby, and Mary Edetha Williams. Bachelor of Science: Walter Frank Poshusta. Bachelor of Letters: Robert Lee Davis, Morton Howard Henry, and Ellen Dorothy Johnson. Miss Florence Josephine Ensworth received a normal certificate.

Idaho School.—The school has been permanently located at Gooding, a town in the centre of the largest irrigated part of the State. The new building will be completed some time during the year.

Miss Frances M. Eddy has resigned to be married. Miss

Katherine King, formerly principal of the Cleveland Day-School, has been appointed to take charge of the Intermediate Oral Department. Miss Florence E. Bennett, from the Utah School, takes the primary class.

Illinois School.—Miss Marion E. Fairbank has resigned on account of her father's poor health, and Miss Laura F. Richards to be married. Miss Josephine Washington has also resigned. Mr. George W. Putnam, from the Nebraska School, is appointed a teacher.

Indiana School.—Miss Jolliette E. Constantine and Miss Maude Carter, both of whom were graduated from the Indiana Normal Class and have been teaching in the oral classes of the School for some time, have accepted positions in the Morganton School. The graduates of the Normal Class this year were Miss Blanche Van Deveer of Kentucky, and Miss Nelle C. LaGrange, of Indiana. The former goes to the Washington State School and the latter to the Morganton School, both as oral teachers. Miss Leora Carver, a graduate of the Normal Class some years ago, who has been teaching in the Iowa School, succeeds Miss Carter. Another teacher is yet to be employed.

Because of financial considerations the school closed on May 26, and will not re-open until October 6.

On account of the failure of the last General Assembly to make adequate appropriations for the completion of the "New Institution" north of the city, the annual session of 1909–10, at least, will be held in the old location. At present, the new schoolhouse, the dining-hall and kitchen bakery, the power house, and three-fourths of each of the boys' and the girls' dormitory groups are completed, or ten buildings in all. The entire plant is to consist of twenty-two buildings, each absolutely necessary to make a complete whole, the new school being arranged upon a modified order of the cottage plan. Each and every building in the outlined plan is of specific purpose and plan not arranged for in any other building. It is hoped, however, so to provide as to permit of the occupancy of an uncompleted institution in September,

1910. It may be added that the main buildings have been completed, those yet needed being necessary but calling for very much less expenditure. In the old location the attendance will be limited to about 300, as it has for several years, because of lack of accommodations. The compulsory law is now in effect in this State and in the new school an attendance of 450 is expected.

Institution for Improved Instruction, New York.—Mr. Harris Taylor, late Supervising Teacher of the Kentucky School, has been elected Superintendent and Principal in place of Mr. Elbert A. Gruver, who becomes Principal of the Central New York Institution. Miss Alice L. Crampton has resigned to teach in the Central New York Institution. Mr. T. Brill, from the Halifax Institution, and Miss Margaret H. Jenkins are added to the corps of teachers. Miss Louise Nesbitt, formerly teacher of cooking, returns to the work.

Kansas School.—Mr. Henry C. Hammond, Superintendent for the past thirteen years and a teacher of the deaf for forty years, has retired and is succeeded by Mr. Cyrus E. White, late Superintendent of the Nebraska School.

The Kindergarten Department is temporarily abandoned.

Kendall School.—Mr. James Denison, who has been connected with the School as a teacher since its establishment fifty-two years ago and as Principal for the past thirty-nine years, has resigned the principalship but will continue as an instructor, devoting himself especally to the training of the Normal Class. Mr. Lyman Steed, Resident Principal of the Maryland School for the Colored for the past three years, is appointed Principal. Miss Musa Marbut, from the Pennsylvania Institution, succeeds Mrs. A. C. Gaw, who has resigned, as teacher of articulation.

Kentucky School.—Mr. Harris Taylor, Supervising Teacher, has resigned to become Principal of the Institution for Inproved Instruction, New York. Miss Ethel M. Hilliard, from the Pennsylvania Institution, has been appointed Supervising Teacher of the Oral Department. Mr. Frank Christman, Mrs. Stella P. Christman, Mrs. Lillian Paddle-

ford, and Miss Sarah Kinnaird have resigned. All of them except Mrs. Paddleford, who goes to the Oregon School, retire from the profession. Miss Mathilde Stodghill, from the Minnesota School, Miss Sophia K. Alcorn, from the North Carolina (Morganton) School, and Miss Angie C. Kinnaird, from the Georgia School, have been appointed to fill the vacancies.

Louisiana School.—Mrs. Minnie Bell Krueger will not teach in this School next year. Miss Frances Ferguson, late of the Arkansas Institute, is added to the list of oral teachers.

Maryland School.—Miss Hermine M. Haupt has resigned to teach in the Oregon School and Miss Betty L. Bowles from the Utah School takes her place.

Maryland School for Colored.—Mr. T. C. Forrester, late Head Teacher of the Montana School, has been appointed Resident Principal in the place of Mr. Lyman Steed, who resigned to become Principal of the Kendall School.

Minnesota School.—Mr. Walter M. Kilpatrick has resigned to practise landscape gardening in Minneapolis; Mr. Arthur P. Buchanan to teach in the Michigan School; and Miss Mathilde Stodghill to teach in the Kentucky School. Miss Vira George also does not return. Miss Elizabeth Bost, from the Arkansas School; Mr. Thomas Rodwell, from the Ontario Institution; and Miss Mary K. Towler, from the Cleveland Day-School, are appointed teachers. Mr. H. E. Bruns is appointed to teach art.

Nebraska School.—Mr. R. E. Stewart, Superintendent from 1901 to 1907, resumed management of the School June 15 after an absence of one year and nine months. Mr. Waldo H. Rothert, a former teacher, returns to take the place of Mr. H. D. Drake, who retires to his farm in Ohio; Miss Anna Johnson, a graduate of this School who has also been a student at Gallaudet College, takes the place of Miss Marion Finch, resigned; Mrs. May Gregory, a former teacher, returns, and Miss Lois Montgomery and Miss Mary Goddard enter the work as new teachers.

New England Industrial School.—Miss Daisy Davis, from the North Carolina (Morganton) School, has been appointed teacher in place of Miss Adelaide Hendershot, who has been substituting since Christmas.

New York Institution.—Mr. Isaac B. Gardner has resigned to become Superintendent of the Arkansas Institute; Miss Lura Mack and Miss Mary B. MacIntyre on account of ill health; and Miss Edith A. Hillman to be married. To supply these vacancies, there have been selected Mr. Edwin L. LaCrosse, M. A., Normal Fellow last year at Gallaudet, and Miss Clara V. Cooper, from the Pennsylvania Oral School. Mr. Robert S. Ripley, B. S., of Hobart College, will take training at this Institution.

Through the liberality of one of the directors, a thousand-feet reel of moving pictures has been made of the battalion in its military manœuvres and also a Shakesperian recitation and a comic story by Mr. Wm. G. Jones, an instructor in the Institution.

North Carolina (Morganton) School.—Miss Grace Taft, Miss Josephine Conn, and Miss Charlie Taylor have resigned to be married; Miss Mamie Cool to teach in the New Mexico School; Miss Daisy Davis to teach in the New England Industrial School and to pursue advanced study in Boston; Miss Margaret H. Roberts to take oral training in the Clarke School; and Miss Sophia Alcorn to teach in the Kentucky School. To fill these several vacancies, Miss Pauline Camp and Miss Claire Gipson, from the Normal Class of the Clarke School; Miss Nell C. LaGrange and Miss Jolliette E. Constantine, from the Indiana School; Miss Maude Carter from the Kentucky School; Miss Louise Curtis, of Illinois, and Miss Clyde King, from the Arkansas School, have been engaged.

North Carolina (Raleigh) School.—Miss Florence Eaton is added to the corps of teachers.

Provision was made by the last General Assembly of the State for sick wards for the School. These are now in process

of construction and will be ready for use at the opening of the session.

North Dakota School.—Mrs. C. P. Buchanan, for nine years past instructor in sewing, has resigned.

A new hospital of sixteen beds, with operating and disinfecting rooms, has been completed. A new school building is under course of construction but owing to lack of funds only the outside walls will be raised this year.

Ohio School.—Mrs. Ida Lutz, who has taught in the Primary Department for the past ten years, was married at the close of school; Miss Anna Belle Steelman, who has also been a teacher a number of years, has resigned to teach in the Los Angeles School; Miss Olga Wittenmeier, a teacher for the past nine years, to teach in the Rhode Island Institute. Miss Louise Berry, a teacher for several years in the Primary Department, has been appointed Assistant Supervising Teacher of Speech and Lip-Reading. The new teachers are Miss Lillian Rhoads, from the Oregon School; Miss Mabel Mallory from the Providence School; Miss Emma Landis and Miss Grace Griffith, trained in the Ohio School.

Pennsylvania Institution.—Miss Ethel M. Hilliard has resigned to become Supervising Teacher of Speech in the Kentucky School; Miss Musa Marbut to teach in the Kendall School; Miss Mary W. Hilliard to be married; Miss Mabel K. Jones to teach in the New York Day School; Miss Ethel M. Smith to teach in the Pennsylvania Oral School; Miss Elizabeth O. Jones on account of ill health; Miss Barbara C. Cullen and Miss Ida La Rue to enter upon other work. The following appointments have been made: Miss Hubbert and Miss Roberts, from the Training School of the Clarke Institution; Miss Ernestine Faye Ball, M. A., and Mr. Frank H. Reiter, M. A., from the Gallaudet Normal Class; Miss Priscilla A. Fuller, from the Mystic Oral School; Miss Eurania H. Sturdevant, from the Rhode Island Institute; Miss Idella M. Walton, from the Illinois School; and Miss Cora E. Gruver, who returns after a year's absence on account of ill health. Miss Simon of Mt. Airy, trained in the Penn-

sylvania Institution, has been appointed to fill the vacancy created by the appointment of Miss Julia A. Foley as special teacher of Kathryne May Frick, the blind-deaf child recently admitted as a pupil. In the Industrial Department John Thiry has been appointed instructor in baking in place of William F. Drusedum, recently deceased; William A. Cloak instructor in plastering and brickwork; and Miss Anna B. Lentz assistant instructor in dressmaking.

Pennsylvania Oral School.—Miss Clara Cooper and Miss Margaret Surber have resigned and Miss Ethel M. Smith, from the Pennsylvania Institution, and Miss Ivanella Thompson, from the Mystic Oral School, have been appointed to fill their places. Mr. Schoonmaker, manual training teacher, has also resigned and Miss Jenkins, from the Mystic Oral School, takes his place.

South Carolina School.—The degree of LL. D., has been conferred upon Mr. Newton F. Walker, Superintendent, by the South Carolina University.

Texas School.—Miss Mary Bartlett, a teacher for four years, has resigned to live with her mother in Marlin, Texas. She is succeeded by Miss Marion F. Peyton, of Marlin, Texas, a teacher of five years' experience in the public schools, who has taken special training under Mr. Blattner.

A new kitchen is built, 30 by 40, with storerooms attached; and the boys' dining room is enlarged and improved at a total cost of $7,500.00.

Washington State School.—The Schools for the Deaf and for the Blind have been placed under separate management, Mr. Clarke remaining at the head of the School for the Deaf.

Western Pennsylvania Institution.—Miss Anne C. Thompson has accepted a call to the Cleveland Day School, and Miss Ella B. Jewell to the Iowa School. Thus far but one new teacher has been appointed, Miss Mary D. Carter, from the Iowa School.

A gymnasium 50 by 80 feet in size and equipped with a swimming pool, bowling alley, etc., is in process of erection.

MISCELLANEOUS.

The Deaf and the Civil Service.—President Taft has amended the executive order of his predecessor relating to the Civil Service (see the January *Annals*, page 113) so as to make it still more favorable to the deaf, as follows:

EXECUTIVE ORDER.

The Executive Order of December 1, 1908, in regard to the admission of deaf-mutes to Civil Service examinations is amended to read as follows:

Deaf-mutes may be admitted to examinations for all places in the classified civil service of the United States whose duties in the opinion of the heads of the several Executive Departments they may be considered capable of performing, and each department will furnish to the Civil Service Commission a list of such positions, which list shall not be changed without previous notice to the Commission and in accordance with which the Commission shall certify or withold from certification deaf-mutes as they are reached in their order.

WM. H. TAFT.

THE WHITE HOUSE, April 7, 1909.

In compliance with the provisions of this order the heads of the several Departments have furnished the Civil Service Commission with the following list of positions the duties of which in their opinion the deaf are capable of performing:

TREASURY DEPARTMENT.—Accountant, bookkeeper, bookbinder, clerk, computor, compositor, chemist, draftsman, designer, expert money counter, law clerk, locksmith, money counter, paper counter, translator, engraver, clerk or copyist in customs service, clerk or copyist in subtreasury service, clerk or copyist in mint service.

WAR DEPARTMENT.—Copyist (typewriter), Judge-Advocate-General's Office, copyist in Engineer Department at Large, operators of certain automatic machines in the Ordnance Department at Large.

DEPARTMENT OF JUSTICE.—Typewriter.

POST-OFFICE DEPARTMENT.—*Office of First Assistant:* Clerical places not requiring consultation with others. Post-office service—Mail clerks, distributers, and directory and forwarding clerks. *Office of Third Assistant:* Record or clerical positions not requiring frequent or constant consultation with others. *Office of Fourth Assistant:* Positions other than stenographer or typewriter, telephone operator, rural carrier, or where the person would be required to maintain oral

communication with others. (The Department also states that in making request for certification it will indicate whether or not deaf persons can satisfactorily fill the position.)

NAVY DEPARTMENT.—*Bureau of Supplies and Accounts:* Laborer (cleaning office rooms); possibly clerical positions involving routine bookkeeping, filing papers, etc. *Bath Iron Works:* Draftsman of lower grade. *Bureau of Navigation:* Copyist at $840, sending out recruiting circulars and publications. *Washington Gun Factory:* Possibly draftsman. *Proving Ground, Indian Head, Md.:* Laboratorian. *Mare Island Navy Yard:* Special laborer or clerk, $2.56, Department of Yards and Docks, checking figures and filing costs from data furnished. *New York Navy Yard:* One clerical position.

DEPARTMENT OF THE INTERIOR.—Law examiner, assistant examiner in the Patent Office, statistician, bookkeeper, computer, clerk, copyist, typewriter, engraver, draftsman, map printer's assistant, assistant photographer, mechanic, cabinetmaker, carpenter, painter, plumber, packer, skilled laborer, laborer, charwoman, geologist, paleontologist, chemist, geographer, and topographer.

DEPARTMENT OF AGRICULTURE.—Five positions in the Bureau of Statistics, compiling, computing, and tabulating statistical data; lower grade clerk, Weather Bureau.

DEPARTMENT OF COMMERCE AND LABOR.—Any clerical position not involving special qualifications up to and including the grade of $900 per annum; charwoman, draftsman, engraver, and computer in the Coast and Geodetic Survey.

GOVERNMENT PRINTING OFFICE.—Skilled laborer, press feeder, bookbinder, electrotyper, compositor, and stereotyper.

SMITHSONIAN INSTITUTION.—One clerkship, International Exchanges, involving continuous record work; one position of computer, Astrophysical Observatory.

Here are a large number of positions in the Government service now open to all deaf persons otherwise eligible who may show themselves competent to fill them, and others will no doubt be added to the list as the capabilities of the deaf come to be better understood by the heads of Departments.

In addition to furnishing the list of positions in the Interior Department given above, Mr. Ballinger, Secretary of the Interior, has instructed the heads of the various bureaus of his Department "to give equal consideration to the names of deaf persons who may be certified to them

for appointment, where the duties are such as can be advantageously performed by them."

Mr. Nagel, Secretary of Commerce and Labor, suggests, according to the Washington *Evening Star* of August 17, that "deaf persons might make good operators for the puncturing and tabulating machines to be used in making up the returns of the Census [a position not included in the above list]. The work requires great concentration on the part of the operator to prevent mistakes. There has been a good deal of complaint that the Government has not given all the work possible to the deaf," said the Secretary, "and *we are now inclined to give them anything we can.*"

This friendly disposition toward the deaf on the part of the present administration, while no doubt partly the result of the various influences brought to bear upon the Government during the past two years, is chiefly due in our opinion to Mr. George William Veditz's adroit move in calling Mr. Taft's attention to the subject when he was a candidate for the presidency last year. In conversation with Dr. Gallaudet last spring President Taft of his own accord introduced this subject and his comments showed that Mr. Veditz's letters had made a strong and favorable impression upon his mind.

"*Dumb No Longer.*"—The history of the development of oral instruction in America, by Mr. Fred De Land, which has been printed serially in the *Association Review* during the past four years under the title "The Real Romance of the Telephone, or Why Deaf Children in America Need no Longer be Dumb," is published by the Volta Bureau in book form with a slight change in the title, which is now "Dumb No Longer. Romance of the Telephone" (8vo, pp. 285). Mr. De Land assigns the chief credit for the introduction and progress of oral teaching in America to the efforts of Mr. Gardiner Greene Hubbard, Miss Harriet B. Rogers, Miss Sarah Fuller, and Dr. Alexander Graham Bell. In connection with Dr. Bell's work in this direction he gives a full history of his invention of the telephone,

which grew out of his teaching of the deaf. He also recognizes the important services that were rendered in the early days of oral instruction by many others, especially Horace Mann, Samuel G. Howe, John Clarke, Lewis J. Dudley, Frank B. Sanborn, and Dexter King.

William Sunderland Marshall.—William Sunderland Marshall, a veteran teacher of the deaf, died at his residence in Pasadena, California, July 24, after several days of unconsciousness resulting from cerebral deterioration, at the age of seventy-two years. The following sketch of his life is written for the *Annals* by one who knew him intimately:

William Sunderland Marshall was one of the oldest, and for more than forty years one of the most efficient teachers of the deaf in the Middle West. He was born and reared in Central Indiana; took his A. B. degree from De Pauw University in 1859, and his A. M. in 1862. In the fall of 1859 he began what proved to be his life work—teaching the deaf—in the Indiana State School under the instruction of his uncle, Dr. W. H. DeMotte. In 1861 he enlisted as a private in the 51st Regiment of Indiana Volunteers. He was promoted to be adjutant of the regiment. In this capacity he accompanied Colonel Streight on his hazardous raid into the south, which culminated in the capture of the entire brigade by General Forrest near Rome, Georgia, May 2, 1862. During the following twenty-two months he was held a prisoner of war in various southern prisons—twelve months being in Libby Prison, Richmond, Virginia. For shorter periods he was in Macon, Charleston, and Columbia. During his imprisonment he made three escapes, but was twice recaptured, the final attempt being successful. He entered General Sherman's lines at Winnsboro, South Carolina, and from thence went to Washington where he received his honorable discharge on the expiration of his term of service, March, 1865.

After the rest and recuperation which this severe experience necessitated he resumed in the fall his position in the Indiana School, continuing four years, when he resigned to accept a similar position in the Missouri School.

In the spring of 1887 on account of failing health he resigned, and went to California. The rest and change of climate proved so beneficial that after a year he accepted a position as teacher in the Iowa School, where he continued for nine years. Feeling the need again of the western climate he accepted a place in the Utah School. After two years he decided to retire from the profession, disabled, no doubt, largely by his privations and hardships during his military experiences.

From 1899 to the date of his death he lived a quiet, restful life in Pomona and Pasadena, California.

Mr. Marshall was a member of the Masons and of the Grand Army of the Republic. He was a devout Christian; the first part of his life he held membership in the Methodist Episcopal Church, and latterly in the Presbyterian. During his residence in Pasadena he conducted religious services of a nonsectarian character for the deaf people of Los Angeles in the First Congregational Church of that city, which were interesting and beneficial. He was held in high esteem by all who knew him.

He is survived by his wife, Mrs. Ellena Provines Marshall, and his son, William N. Marshall, who is a teacher in the Washington State School. The remains were interred in the cemetery at Los Angeles with services by the Rev. U. J. McLeod, interpreted in signs to the deaf who were present.

The International Bulletin.—Again we call the attention of our readers to the *Bulletin Internationale* and urge them to assist in the work by contributing to its discussion of speech-reading, sending analyses of their recent works, and subscribing one dollar each for the publication. If the number of subscribers justify it there will be four editions of the *Bulletin*, viz., in French, Italian, English, and German. For further particulars we refer our readers to the January and May numbers of the *Annals*.

Periodicals.—A new magazine entitled the *Silent World*, and devoted to the interests of the deaf, is published bimonthly at 35 Braithwaite Road, Sparbrook, Birmingham, England. It is edited with ability and discretion by Mr. M. S. Fry. The price is 30 cents a year.

The *Deaf American*, published for the past ten years at Omaha, Nebraska, has suspended publication.

ADVERTISEMENTS.

Bureau of Information.

The Convention of American Instructors of the Deaf maintains a free Bureau of Information for the use of superintendents and principals seeking the services of teachers and officers, and for teachers, matrons, and supervisors desiring positions.

The Bureau keeps on file the names of all applicants for positions in schools for the deaf, together with information as to length of service, work desired, salary expected, etc. It endeavors to give prompt and accurate replies to all requests for information.

All are invited to make use of this free Bureau.

PERCIVAL HALL, *Secretary*,
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